CITY OF SCOTTSDALE



STREETS MASTER PLAN

October, 2003

City of Scottsdale

2003 Streets Master Plan

Adopted: October 20, 2003

ACKNOWLEDGMENTS

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1. Introduction

The Streets Master Plan (SMP) determines the future transportation network for Scottsdale. The SMP maps out a strategy to keep the Scottsdale street network operating efficiently into the future. Strategies include building or widening streets, making existing streets work better, applying technology to improve traffic flow among many others.

Internet Tip

Look for this symbol throughout the document as a guide to more information available on the City's Web site.

This document is mainly a reference document used to understand what the future and existing street network looks like. Contained in this plan is the Street Classification Map. This map replaces the "Street Plan" map from the old Circulation Element, in the 1999 General Plan. The latest General Plan adopted by voters in March 2001 did not include a street classification map, this is one of the main reasons for creating the Streets Master Plan. Even though it is a new plan it serves the same function as the Circulation Element in the old General Plan. Providing guidance as to how streets are classified, why and what that mean.

Within this document are goals and objectives, street classifications, design guides and implementation strategies. This master plan is not intended to set street construction standards, those are contained in the Design Standards and Policy Manual. The SMP does however dictate the general guidelines and definition for the street classification system.

Ultimately the Streets Master Plan serves to provide consistent information and guidance in the decision making process.

Check out the information in these boxes!

They will contain interesting facts, summaries and additional understanding of issues!

1.1 What is the Streets Master Plan?

The Streets Master Plan (SMP) defines the long range plans for where, when and what streets are built throughout the City of Scottsdale. It determines where new streets may be needed over the next 10 to 20 years and where existing streets need to be improved. The SMP also provides guidelines as to when streets may need installation or improvements. Additionally the streets plan details what these future streets should look like and how they should function.

The streets plan appends to and amplifies the "Circulation Element" of the City of Scottsdale General Plan. The most recent General Plan update, adopted by voters in March 2002, includes a "Mobility Element" focused on broad regional and city-wide transportation issues and policy topics. The newest General Plan does not include the detailed street classification and street cross-sections needed for day to day guidance and decision making. The street plan becomes the planning document providing this detailed information. The street plan builds on the policy groundwork developed in the new General Plan complimenting and further refining the direction given.

The Streets Master Plan What does it do?

- **Identifies the ultimate street network.**
- **Appends and amplifies the General Plans**
- **Designates street classifications.**
- **Defines goals and policies.**
- **Creates a vision for streets in Scottsdale.**

Photo courtesy of Joseph Woodley

This document contains three sections, including:

Goals and Objectives

Based on known conditions of the street network, a set of goals, policies and objectives provide guidance in determining what The City of Scottsdale wants to achieve. These guidelines build from the work developed in the new General Plan. They reflect the values already approved by the community and refine the ideas with more precise direction.

Street Classifications and Design Guides

This section visually shows all the ideas developed in the previous two sections. First, the future street network is laid out and mapped indicating locations of street alignments, type and classification. Second, tied closely to the maps, are the street cross-sections that show the look of the typical streets in terms of number of lanes, widths and function.

Implementation

Once the what and why are determined, the city must determine how it will be implemented. A discussion of the adoption and update process of this document helps underscore the level of flexibility needed when dealing with street planning decisions. In some instances additional analysis of specific corridors will be required before the appropriate street improvement areas requiring further study are identified. Prioritization and funding are also discussed.

1.2 Who is the Streets Master Plan for?

The plan is a decision making tool. This plan is designed to provide general guidance and insight about the street network to city staff, citizens of Scottsdale, decision makers, adjacent communities, developers and businesses in Scottsdale.

City staff uses this document as a handbook of guidelines to make day to day decisions. As development occurs impacting the street network the SMP gives staff the knowledge needed to help guide city requirements in a consistent and manageable way.

The SMP determines the future street network for the City of Scottsdale. This impacts anyone who lives in the city. Citizens of Scottsdale now can see where new streets may go, what streets might be widened and what the streets might look like. Often residents want to know impacts to their neighborhoods now or in the future. The plan serves as a good reference document to help answer questions.

Elected officials are ultimately the decision makers charged with the task of deciding what the city does, when and how much money to spend. The SMP provides a basis for decisions to improve the street system.

Developers need to know the city's plans for infrastructure and what may be expected of them. Providing clear, consistent and reasonable plans set a level playing ground for the development community and eliminates any surprises that might negatively impact a project. The plan will provide this type of guidance, thus improving the environment for economic investment in Scottsdale.

The Streets Master Plan Who is it for?

- **Scottsdale Residents**
- **City Staff**
- **Political Leaders**
- **Business Leaders**
- **Development Interests**
- **Neighboring Jurisdictions**

The Streets Master Plan, while a working document for city staff, is also a shared community asset by providing everyone the knowledge needed to make difficult decisions and the foresight to anticipate changes that will affect the community.

This document also becomes a benchmark for the level of service the streets network is intended to provide. It is also a document that reflects the visions and values of the community, and as such, should adapt to ongoing changes that occur within and near the city.

2.0 Goals and Objectives

This section sets the direction for developing the rest of the Streets Master Plan. The vision, goals and objectives outlined below describe what the city desires to accomplish for the future street network in Scottsdale. These elements were created in relation to existing city policies and established visions and goals.

The Streets Master Plan is derived from the General Plan and the vision and goals were developed to further implement the overall design of the General Plan. In addition the City Council maintains a set of goals (see sidebar) they use to guide their decision making process. One of the Council goals is to "provide for the safe and efficient movement of people and goods", which is the task of the street network and the purpose of the Streets Master Plan.

City Council Goals

Enhance and protect a diverse, family-oriented community where neighborhoods are safe, protected from adverse impacts, and well-maintained.

Preserve the character and environment of Scottsdale.

Provide for the safe and efficient movement of people and goods.

Position Scottsdale for long-term economic prosperity by diversifying our economic resources.

Internet Tip

For more Council info visit
www.scottsdaleaz.gov/council

2.1 Vision Statement

The City of Scottsdale will plan, program, build, operate and maintain a street network which allows for the safe, efficient and free movement of people and goods throughout and connecting to Scottsdale.

2.2 Goals and Objectives

Goal A: Protect and further develop regional corridors to improve circulation through and connectivity to the City of Scottsdale.

Objective A-1: Recognize that streets classified as Major Arterials, Minor Arterials and Major Collectors serve regional traffic patterns.

Objective A-2: Improve the sixteen streets that interchange with the Loop 101 freeway to facilitate regional travel.

Objective A-3: Work with adjacent jurisdictions to create seamless connections on major streets.

Objective A-4: Prioritize regional street projects in the Capital Improvement Program (CIP) process.

Objective A-5: Build regionally significant streets to the ultimate cross-section, as classified, to ease traffic flow on city-wide and local street networks.

Objective A-6: Implement access control policies on existing regional corridors to improve through movements.

City Council Goals (cont.)

Coordinate planning to balance infrastructure and resource needs within budget.

Make government accessible, responsive and accountable so that pragmatic decisions reflect community input and expectations

Ensure Scottsdale is fiscally responsible in its management of taxpayer money and city assets.

Goal B: Maintain and improve citywide traffic circulation on streets classified as Minor Arterials, Major & Minor Collectors.

Objective B-1: Widen city-wide streets to ultimate cross-sections in order to provide Level of Service D.

Objective B-2: Utilize ITS to manage traffic flow and monitor performance of the street system.

Objective B-3: Continue and expand the Roadway Capacity Improvement (RCI) program as part of the CIP process, in order to respond quickly to capacity restrictions.

Objective B-4: Continue to identify major intersections for build-out level improvements through the CIP process.

Objective B-5: Provide a Level of Service D for peak travel periods.

Levels of Service (LOS)

"Six levels of service are defined… from A to F. LOS A representing the best operating conditions LOS F the worst. Each LOS represents a range of operating conditions. .. For most design or planning purposes , LOS D or C are usually used because they ensure an acceptable quality of service to facility users."

Highway Capacity Manual Transportation Research Board

Goal C: Create a street network that is multi-modal.

Objective C-1: Recognize that streets are important for pedestrians, bicyclist, equestrians and transit riders, not just cars.

Objective C-2: Include transit facilities such as bus bays and bus shelters as part of new street projects and street improvement projects, as identified in the "Transit Plan".

Objective C-3: Include sidewalks and other pedestrian enhancements as part of all new street projects and street improvement projects.

Objective C-4: Include bicycle lanes as a standard element in all street classifications larger than a local street when new streets are built or existing streets are improved.

Objective C-5: Provide adjacent multi-use trails along streets in specially designated areas such as the Desert Foothills Character Area as well as along major corridors where specified in the "Trails Master Plan".

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Goal D: Improve traffic circulation on streets already widen to the maximum number of lanes for which they are classified.

Objective D-1: Install Intelligent Transportation Systems (ITS) on appropriate corridors.

Objective D-2: Encourage a mix of land uses that reduce overall auto use and are compatible with the function of the adjacent street network.

Objective D-3: Implement access control policies to improve traffic flow.

Objective D-4: Pursue regional funding to add High Occupancy Lanes to the Loop 101.

Goal E: Protect neighborhoods from negative impacts of traffic.

Objective E-1: Focus traffic on citywide and regional streets.

Objective E-2: Implement traffic calming when appropriate as defined by the "Neighborhood Traffic Management Program".

Objective E-3: Reduce noise associated with traffic in neighborhoods.

Objective E-4: Discourage cut-through traffic.

Objective E-5: Encourage non-motorized travel for short trips by providing multi-use path connections and grade separations especially near schools, parks and local destinations.

3.0 Street Classification and Design Guides

The "Scottsdale 2001 General Plan" set a framework for organizing the street network in Scottsdale. In the *Community Mobility Element* three distinct levels were defined: Regional, Citywide, and Local/Neighborhood systems (see Figure 3-A). The Streets Master Plan refines this concept into street classifications. The relation between the two sets of definitions are shown below in Table 3-A. As shown in the table the same street classification can be associated with more than one General Plan definition.

Internet Tip

View entire General Plan at www.scottsdaleaz.gov/GeneralPlan

Table 3-A: Definition Relationships

General Plan Definition	Streets Master Plan Classification	Typical # of Lanes
Regional	Major Arterial	6
	Minor Arterial	4-6
	Major Collector	4
Citywide	Major Collector	4
	Minor Collector	3
Local Neighborhood	Minor Collector	3
	Local Residential	2

This section defines the street classification system used by the city. The classification system and classification map are important tools used to make decisions and understanding the future street network. The classification map represents the future or "ultimate" planned street network and street configuration for each of the major streets. This is important for making land use plans, timing street improvements and understanding future impacts on neighborhoods.

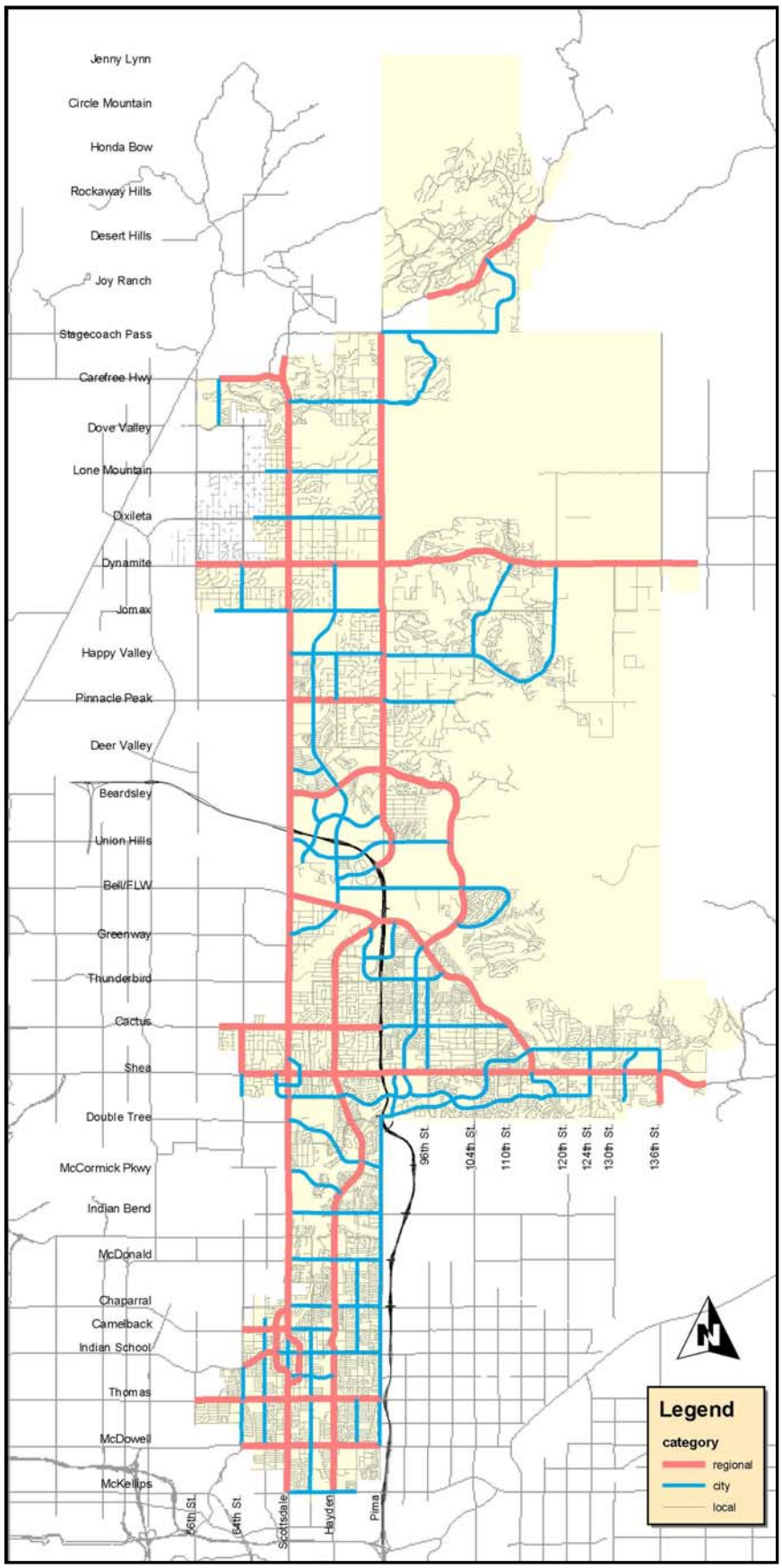


Figure 3-A: 2001 General Plan Street Categories

3.1 Street Classification Map

The street classification map represents the future plans for the City of Scottsdale street network. In many cases streets are already built to their ultimate number of lanes, and are also shown on the classification map. This map is the main reference for determining the nature of a street when improvements are proposed or a new street is built.

What are "street classifications"?

Classifications are simply a way to define the street network in a logical manner. The classifications are organized so that similarly traveled streets share the same classification and serve similar functions. The street classification system represents a street hierarchy. This street hierarchy separates streets by the type of expected use. Figure 3-B illustrates the classification hierarchy. Advantages of such a system include:

- Safety – keeps fast traffic out of neighborhoods.
- Efficiency – maintenance and operations can be prioritized.
- Residential Quality – keeping traffic on major streets promotes quieter, safer and more pleasant neighborhoods.

(list adapted from "The Subdivision and Site Plan Handbook")

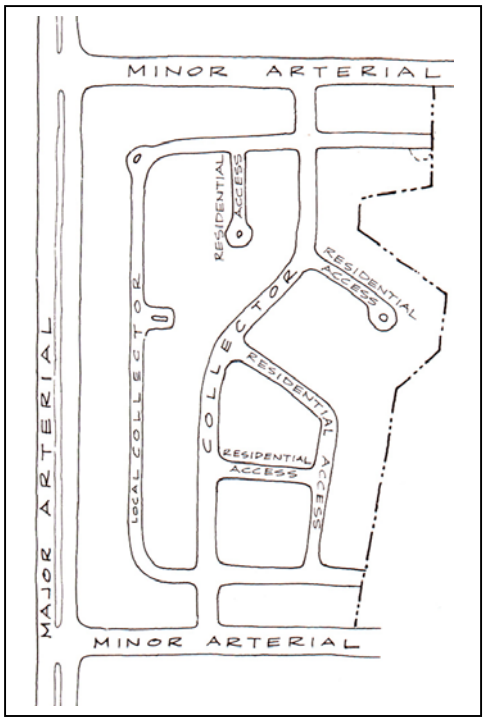


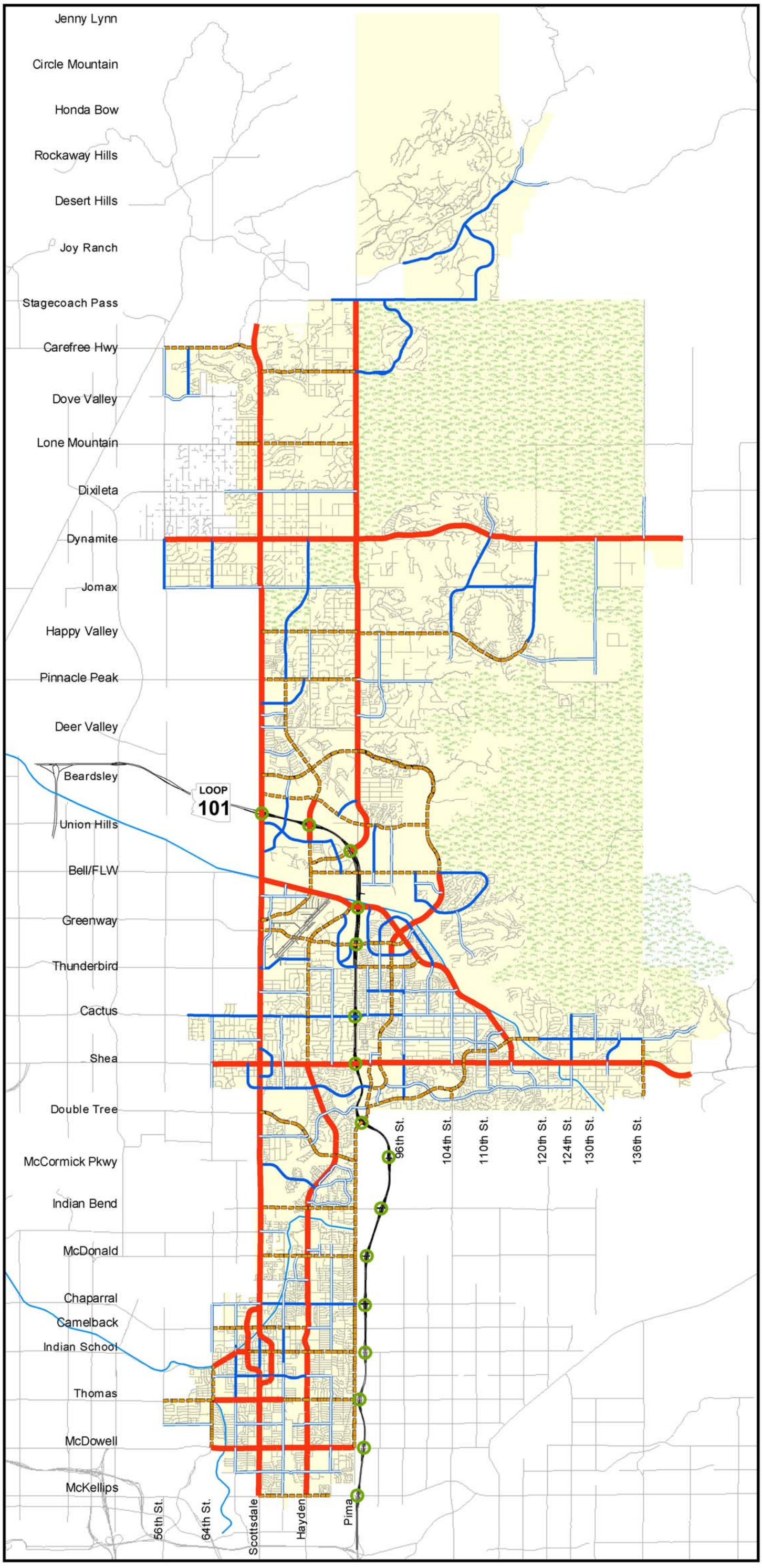
Figure 3-B:
Classification Hierarchy Diagram

Table 3-B provides an overview of the City of Scottsdale street classification system, Figure 3-C on the following page is the Street Classification Map.

Table 3-B: Street Classifications Overview

Classification	Number of Lanes	Minimum ROW	Minimum ROW With Trail[1]	Design Speed (mph)	Design Volume (cars per day)
Major Arterial	6	150	-	55	35,000 – 55,000
Minor Arterial	4	110	-	55	25,000 – 35,000
Major Collector	4	100 (90 ESL)	-	45	15,000 – 35,000
Minor Collector[2]	3	70 (60 ESL)	80	35	5,000 – 15,000
Local Collector	2	60 (50 ESL)	70	30	1,500 – 5,000
Local/Residential	2	46 (40 ESL)	60	25	Max 1,500

Notes: 1. Utilized when street has trail designated per the Trails Master Plan for offset design (see classification guidelines).
2. Two lanes with a center turn lane, denoted as three lanes.



CITY OF SCOTTSDALE

Street Classification Map

Figure 3-C: Street Classification Map

LEGEND

Street Classification

- Freeway
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector

Other Map Information

- Proposed Preserve
- 101 Fwy Interchanges

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3.2 Guidelines versus Standards

The Streets Master Plan provides general guidelines for street cross-section designs. These guidelines are intended to help understand what the street classifications mean and how they are to be applied. The guidelines for each classification provide an overview of the expected maximum number of lanes, significant features of the street, design speeds, and design traffic volumes. These guidelines should be utilized to define the type of street either future or existing in decision making processes for users of this plan.

Guidelines: …help people understand what type of street to expect.

VS.

Standards: …are used to know how to build streets.

Standards and Policies

The City of Scottsdale maintains a "Design Standards and Policies Manual" or DSPM. This manual contains detailed street cross-sections defining standard measurements used for constructing a street. These standards are based on the general guidelines as established in the Streets Master Plan. These standards are maintained separately from the Streets Master Plan, but must reflect the intent of the cross-sections as defined and adopted in this plan. The detail in the DSPM is important to guide anyone intending to build or improve a street in Scottsdale (be it a developer or the City). This provides consistency to the street network as it evolves and grows. Figure 3-B shows how Master Plans are derived from the General Plan and elements such as Standards evolve from Master Plans.

Internet Tip

View the DSPM at www.scottsdaleaz.gov/Design/DSPM

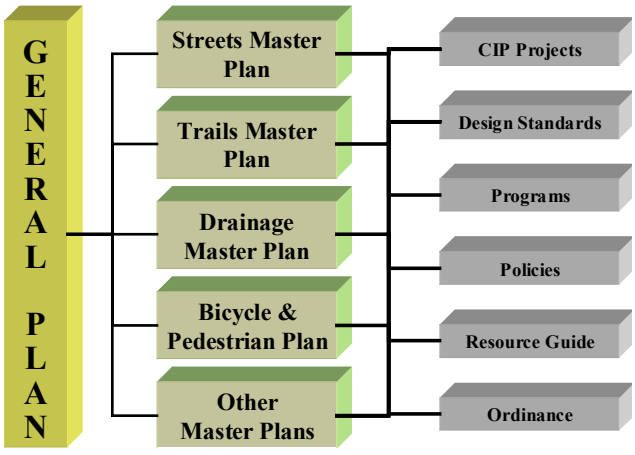


Figure 3-B:
Planning Document Relationships

3.3 Arterial Overview

Arterial streets are the major streets in Scottsdale. Arterial streets are designed to carry a significant amount of traffic at reasonably higher speeds. There are two types of arterial streets; major and minor arterials. The main difference between the two is the ultimate number of travel lanes. Major Arterials are typically planned for six lanes while Minor Arterials are designed with four lanes. Examples of each major and minor arterials are shown below in Table 3-D.

Definition of "Regional" Streets (2001 General Plan)

"The regional level presents the relationships and coordination of systems that travel through and beyond the city borders. The coordination of these regional networks is important to maintain continuous and useful links between Scottsdale and its neighbors. The regional system includes aviation, freeways, parkways, expressways, arterial roadways, regional transit networks, the regional bicycle system and the facilities that support and enhance them. At this level, mobility takes precedence over access."

Table 3-D: Arterial Street Examples

Major Arterials	Minor Arterials
Scottsdale Road	Westland (Scottsdale to Hayden)
Shea Blvd.	Indian Bend Road
Hayden Road	Happy Valley Road

Major Arterials

Major Arterial streets are regional in nature, providing connections to adjacent jurisdictions and routes through Scottsdale to other destinations. These streets are designed to facilitate traffic flow and should have as few driveways, median cuts, left turns and signalized intersections as possible.

Minor Arterials

Minor Arterials while still regional in nature serve a more defined region and are not expected to have as much traffic as the major arterials. These streets however still provide a high level of traffic flow and should also minimize the number of access points as describe for Major Arterials.

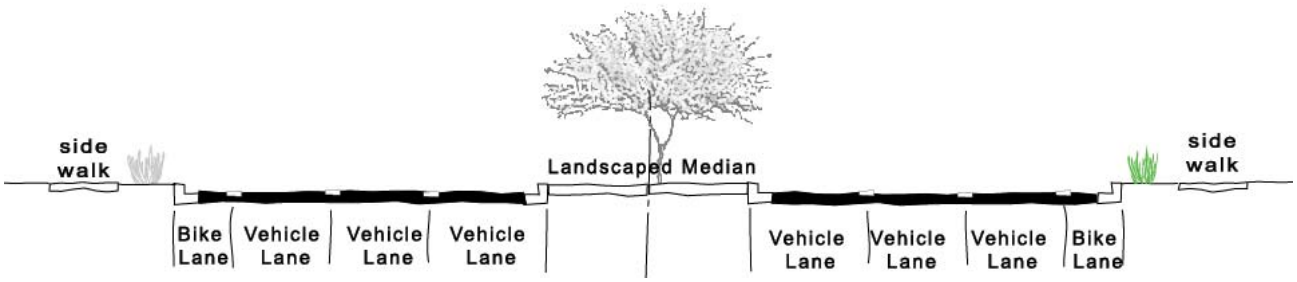


Figure 3-E: Suburban Cross-Section

Key Features

- Bike Lanes Standard
- Six Traffic Lanes
- Wide Landscaped Median
- Sidewalk Buffered from Street
- Adjacent Trail in Scenic Corridors

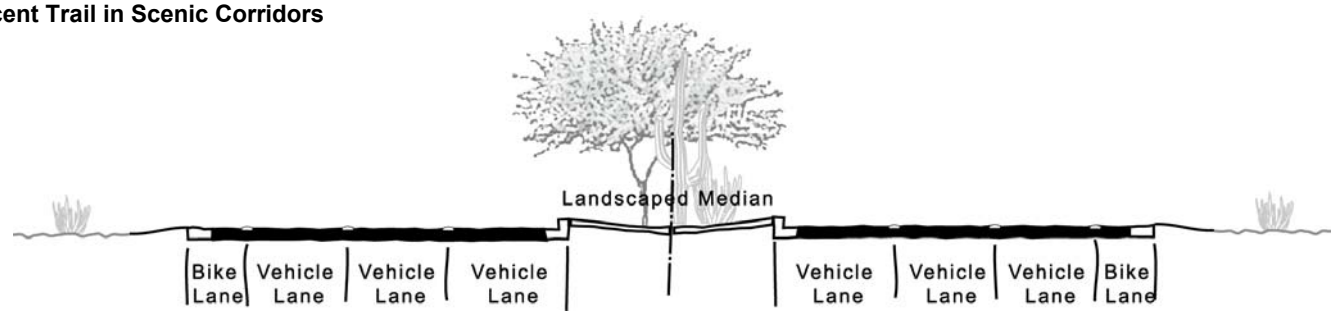


Figure 3-F: Rural/Environmentally Sensitive Lands Cross-Section

Figure 3-G: Major Arterial Example

Average Daily Traffic:	**35,000 – 55,000**
Design Speed:	**45-55 mph**
Right-of-Way:	**150' (additional ROW required for Scenic Corridors, see Scenic Corridor Policy)**
Number of Lanes:	**6 (4 lane, expandable to 6 when applicable)**
Other Considerations:	**Scenic Corridor guidelines to be followed when designated (see appendix B)**
Signal Spacing:	**1 mile desirable; ½ mile minimum**
Access Control:	**High (1/4 mile median breaks)**

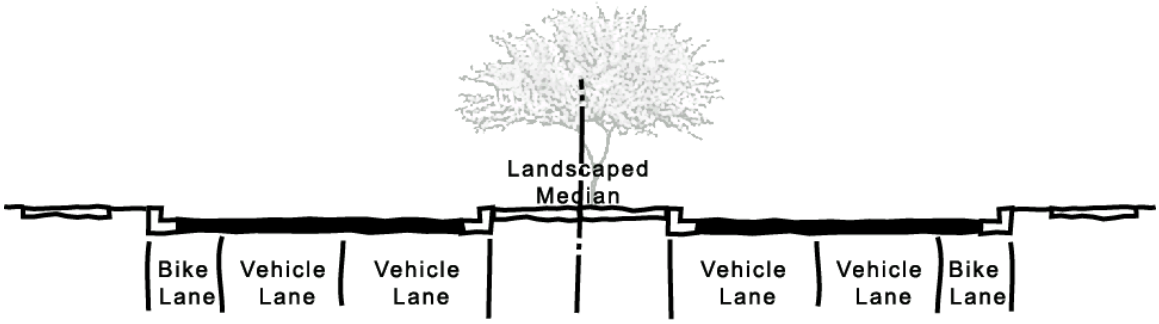


Figure 3-H: Suburban Cross-Section

Key Features

- Bike Lanes Standard
- Four Traffic Lanes
- Wide Landscaped Median
- Sidewalk Buffered from Street
- Serves Regional Traffic

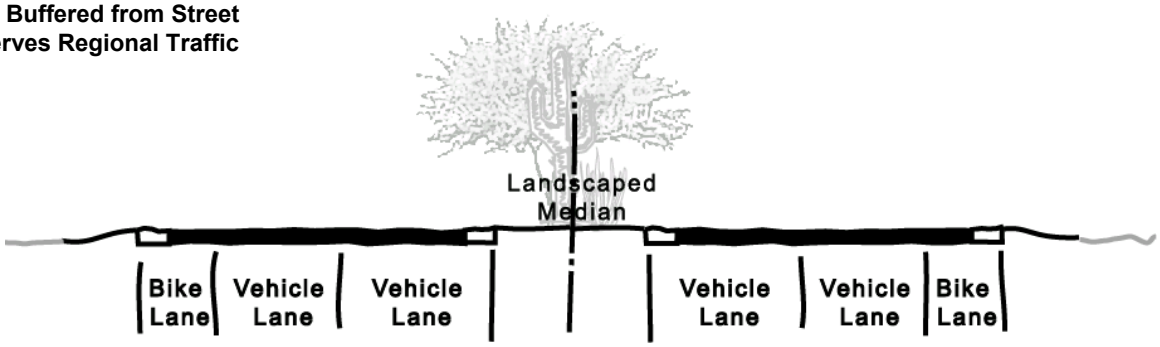


Figure 3-I: Rural/Environmentally Sensitive Lands Cross-Section

Figure 3-J: Minor Arterial Example

Average Daily Traffic:	**25,000 – 35,000**
Design Speed:	**35-45 mph**
Right-of-Way:	**110'**
Number of Lanes:	**4 (2 lane, expandable to 4 when applicable)**
Other Considerations:	**High access control with few driveways and signalized intersections (see appendix C for access control policies)**
Signal Spacing:	**1 mile desirable; ½ mile minimum**
Access Control:	**High (1/8 mile median breaks)**

3.4 Collector Overview

Collector level streets are those streets which connect neighborhoods to the larger arterial streets. Collector streets serve smaller parts of the city and are not regional in nature like the arterial streets. Collector streets are vital to overall circulation making up a significant portion of the major street network. Three types of collector streets exist; Major Collectors, Minor Collectors and Local Collectors. Major Collectors are typically four lane streets where as Minor Collectors have two travel lanes and a center turn lane, Local Collectors feature two travel lanes and no center turn lane. Examples of collector streets are shown in Table 3-E.

Definition of "Citywide" Streets (2001 General Plan)

Citywide Definition (2001 General Plan)

"The citywide level focuses on policies that efficiently move people, goods, and information through and within our community. Citywide systems include arterial and collector roadways, scenic corridors, local and limited-stop transit systems, bicycle system network, on-demand services (currently Dial-a-ride and the trial program of taxi vouchers called Cab Connection) for elderly and handicapped persons, and technology and citywide electronic transportation systems. At this level, mobility and access should be balanced."

Table 3-E: Collector Street Examples

Major Collectors	Minor Collectors
Mountain View Road	Miller Road
Cactus Rd (64th to 96th St.)	Cactus Rd. (96th to FLW)
Legend Trail Pkwy	Dixileta Road

Major Collectors

Major Collectors are four lane streets but serve a different function than Minor Arterials which are also four lane streets. Major Collectors are designed for slightly less volumes at lower speeds, this allows for more direct access points such as driveways, left turns and more signalized intersections. Major Collectors provide connections to the arterial streets.

Minor and Local Collectors

Minor and Local Collectors are scattered throughout the city making vital links between neighborhoods and the larger street network. These two lane streets serve neighborhoods providing access to schools, churches and parks. These streets are still designed for good traffic flow, however more driveways, left turns and intersections are expected on Minor and Local Collectors.

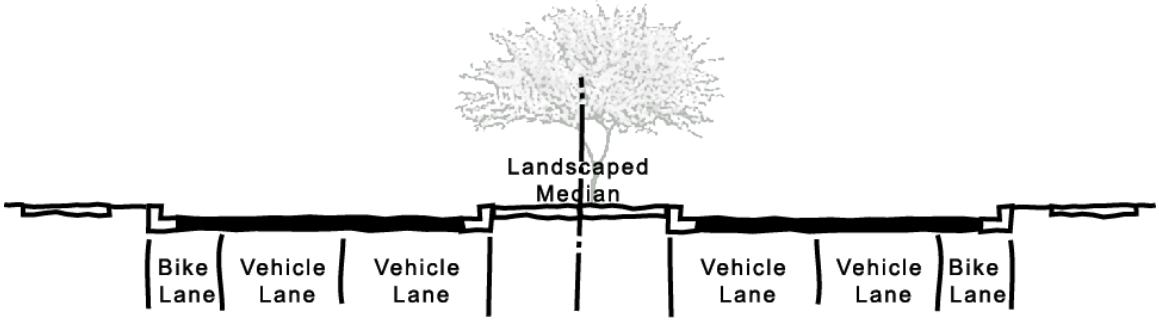


Figure 3-K: Suburban Cross-Section

Key Features

- Bike Lanes Standard
- Four Traffic Lanes
- Wide Landscaped Median
- Sidewalk Buffered from Street
- Serves sub-regional Traffic

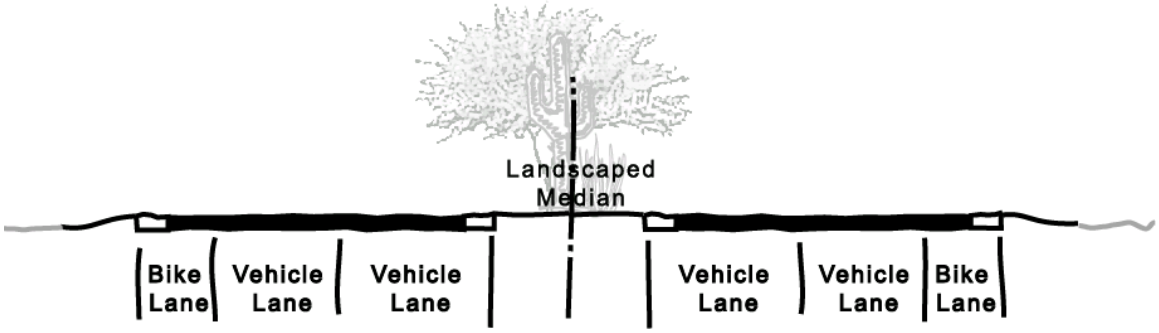


Figure 3-L: Rural/Environmentally Sensitive Lands Cross-Section

Figure 3-M: Major Collector Example

Average Daily Traffic:	**15,000 – 35,000**
Design Speed:	**35-45 mph**
Right-of-Way:	**- 100' - 90' ESL**
Number of Lanes:	**4 (2 lane, expandable to 4 when applicable)**
Other Considerations:	
Signal Spacing:	**½ mile desirable; ¼ mile minimum**
Access Control:	**Medium**

Minor Collector Design Guide

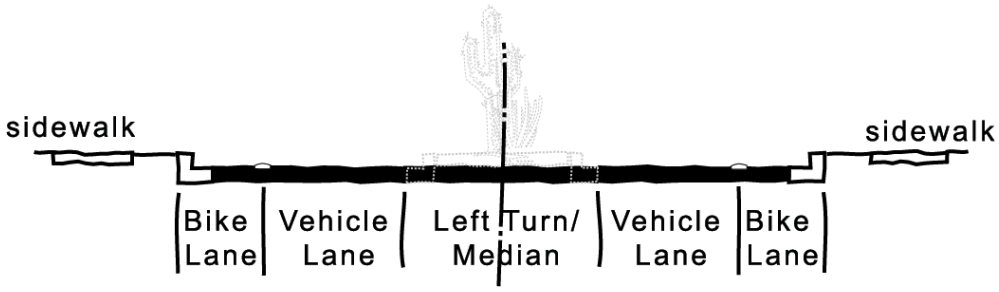


Figure 3-N: Suburban Cross-Section

Key Features

- Bike Lanes Standard
- Two Traffic Lanes
- Combination Median/Center Turn Lane
- Serves Neighborhood Traffic
- Adjacent Trail as specified in Trails Master Plan

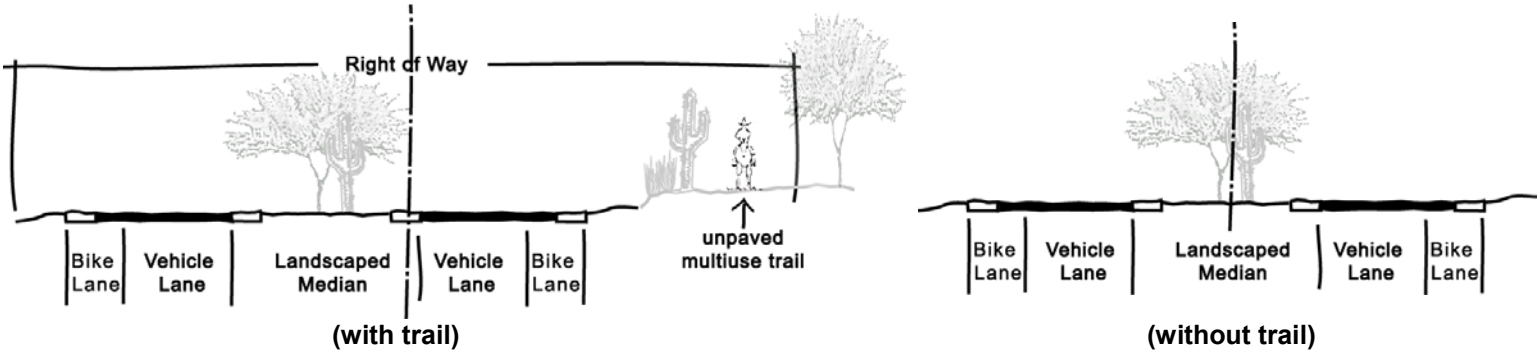


Figure 3-O: Rural/Environmentally Sensitive Lands Cross-Sections

Figure 3-P: Minor Collector Example

Average Daily Traffic:	**5,000 – 15,000**
Design Speed:	**35 mph**
Right-of-Way:	**- 70'** **- 60' ESL** **- 80' with trail per Trails Master Plan**
Number of Lanes:	**2 (with center turn lane/median)**
Other Considerations:	**In rural or environmentally sensitive areas, the street maybe offset to buffer a multi-use trail as designated in the "Trails Master Plan".**
Signal Spacing:	**½ mile desirable; ¼ mile minimum**
Access Control:	**Low**

Local Collector Design Guide

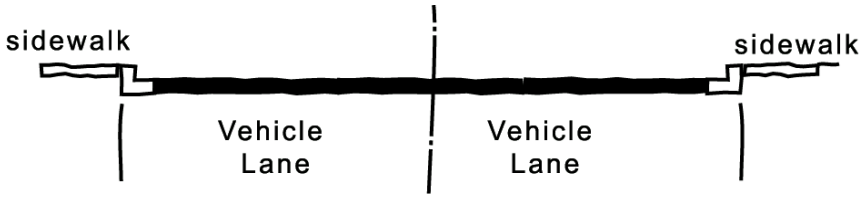
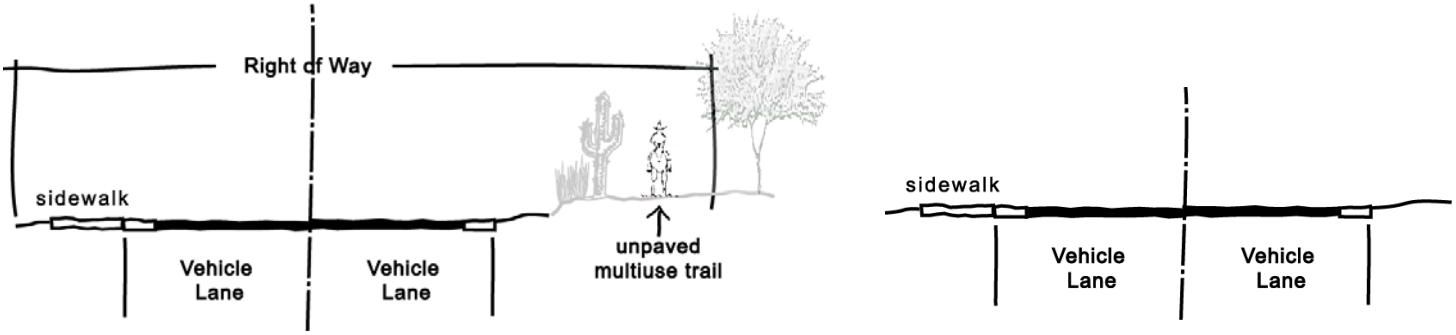


Figure 3-Q: Suburban Cross-Section

Key Features

- **Wide Curb Lane**
- **Two Traffic Lanes**
- **No Center Turn Lane**



(with trail) **(without trail)**

Figure 3-R: Rural/Environmentally Sensitive Lands Cross-Sections

Figure 3-S: Local Collector Example

Average Daily Traffic:	**1,500 – 5,000**
Design Speed:	**30 mph**
Right-of-Way:	**- 60'** **- 50' ESL** **- 70' with trail per Trails Master Plan**
Number of Lanes:	**2**
Other Considerations:	**In rural or environmentally sensitive areas, the street maybe offset to buffer a multi-use trail as designated in the "Trails Master Plan".**
Signal Spacing:	**N/A**
Access Control:	**Low**

3.5 Local/Residential Overview

Local and Residential level streets are those streets in front of houses and access to businesses. These streets are two lane streets and are designed for low traffic volumes and relatively low traffic speeds. Local/Residential streets serve only those residents or users within a given neighborhood. These streets are not intended for regional travel or even sub-regional traffic and preventing cut through traffic on this level of street is vital.

Table 3-D shows how many center line miles of street classification are in the existing street network. This highlights the importance of residential streets (private streets are almost all residential in nature and are included when calculating the total number of residential miles) which in total miles far outweigh all the other street classifications.

Table 3-F: Existing Street Classification

Classification	Miles
Major Arterial	107
Minor Arterial	86
Major Collector	62
Minor Collector	108
Couplet	3
Residential	**748**
Private	**430**
Other	18
Total	**1562**

Residential and Local streets are not considered part of the "major" street network and are not the focus of this street plan. These streets are implemented in conjunction with development or neighborhood activity on a case by case basis.

Definition of "Local/Residential" Streets (2001 General Plan)

"The local/neighborhood level seeks to develop choices based upon the dynamics of local neighborhoods. Local systems include neighborhood streets, circulator and shuttle bus systems, multiuse paths and connections to paths, sidewalks, telework centers, handicapped access features, and traffic calming strategies. At this level, access takes precedence over mobility, and non-motorized mobility types (for example: walking, biking, and in some neighborhoods horseback riding) are a priority."

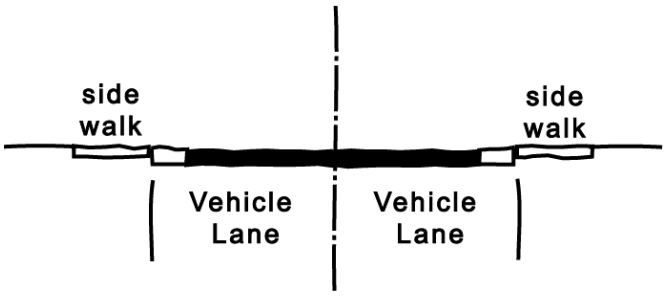


Figure 3-T: Suburban Cross-Section

Key Features

- Two Traffic Lanes
- Low Traffic Speeds
- Low Traffic Volumes
- Direct Driveway Access
- Adjacent Trail when applicable

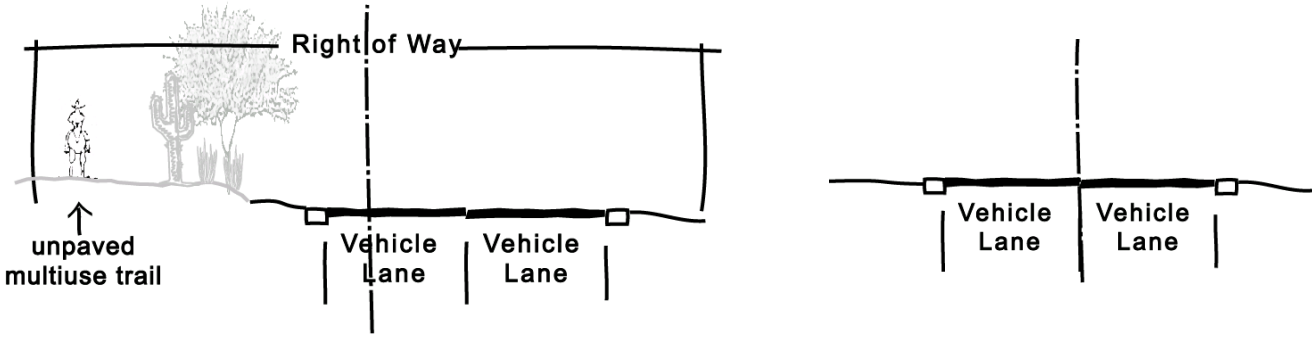


Figure 3-U: Rural/Environmentally Sensitive Lands Cross-Sections

Figure 3-V: Local Street Example

Average Daily Traffic:	**1,500 max**
Design Speed:	**30 mph**
Right-of-Way:	**- 40'** **- 40' ESL** **- 60' with trail per Trails Master Plan**
Number of Lanes:	**2**
Other Considerations:	**In rural or environmentally sensitive areas, the street maybe offset to buffer a multi-use trail as designated in the "Trails Master Plan".**
Signal Spacing:	**N/A**
Access Control:	**Low**

3.6 Other Design Considerations

Intersection Design Considerations

Proper street intersection design is critical to the functioning of the street network. To function properly intersections need to have enough capacity to not only allow traffic going straight through but also provide for traffic turning left and right. Without enough turning capacity a heavily used intersection will cause traffic backups on the streets. To provide enough space for the left turn and right turn lanes intersections require additional right-of-way, and will be wider than the streets. When planning for street improvements this additional width must be planned for when acquiring rights-of-way. The following provides guidance;

- At all intersections involving minor collector or greater designated streets, an additional 10 feet of right of way per side should be dedicated for a length of up to 300 feet from the edge of the intersecting street. This would increase the right of way per street by 20 feet. This is especially important at intersection that will be either signalized or controlled through the use of a roundabout.

"Expandable Roadways"

In developing parts of the city where new streets are still being constructed, improvements are being phased. Instead of building the ultimate roadway, for instance a six lane major arterial, four lanes are built first leaving space and the option to expand to the ultimate six lanes when traffic volumes increase. This concept is also being utilized on four lane cross-sections as well, by building

two lanes first, leaving space to expand to the ultimate four when traffic increases. This phasing method secures all the needed future right-of-way and protects it if the road needs to be expanded in the future. Less future disruption and lower costs are two of the major benefits of phasing improvements on expandable roadways. A few roads that are being built or have been built as "expandable roadways" include:

- Pima Road from the 101 north to Thompson Peak Pkwy (4 to 6)
- 91st Street between Bell and Union Hills (2 to 4)
- Lone Mnt. Pkwy, between Stage Coach and Cave Creek (2 to 4)

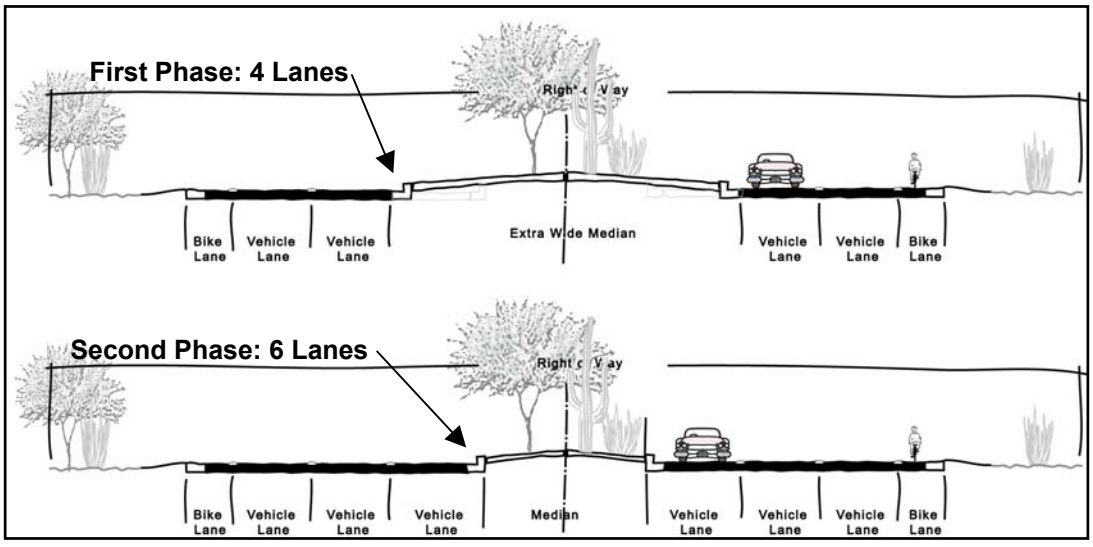


Figure 3-W: Expandable Road (4 to 6)

Transit Considerations

Street function for more that just the automobile. Including accommodations for transit on the street network is vital. This ensures a well functioning transit system, which in turn removes people from their cars and less cars on the street helps the streets function better. The following is an excerpt from the *Transit Plan* concerning street design, which outlines some of the basic street design elements important for transit:

> **"**Bus bays should be located on arterials (major) roadways and on the far side of signalized intersections. Exceptions shall be approved by the city's Transportation Department. To support access to transit stops, streets should be designed to accommodate continuous pedestrian paths. Sidewalks should be provided on all streets as referenced in cross sections in the city's Streets Master Plan. Pedestrian crossings of streets should be at intervals of not more than 500 linear feet. Pedestrian refuges (a specially designed place halfway across a street) should be included as appropriate in any street with a width of more than 50 feet. At intersections where the curb-to-curb distance is greater than 75 feet and where an intersecting bus route exists, bus stops should be located on both sides of the intersection. Passenger waiting areas will be developed only for those stops located at the far side of the intersection location.
>
> Transit stops should generally be located on the far side of signalized intersections or intersections with collector and larger streets. Additional transit stops should also be considered at locations near or adjacent to major retail, office or multi-family (i.e. 250,000 square feet or 500 units or more) facilities. In some cases, the far side location may be moved further away from a intersection if there is no crossing transit route and there is a better access point serving adjacent uses within 500 feet of the intersection."

Internet Tip

View the **Transit Plan at:**
www.scottsdaleaz.gov/Traffic/AltTransMethod/TransitPlan

Making streets work for buses as well as automobiles is important to promote circulation for everyone. The major roads function as the main transit routes as they serve major destinations and significant numbers of people. All street improvements should take into account any associate transit needs.

Non-Motorized Design Needs

The street network impacts the movement of everyone either in their car or choosing an alternative mode. Those choosing to bicycle, walk or in some parts of Scottsdale ride a horse, must be accommodated as part of the transportation system.

Bicycling

In Arizona bicyclist have a right to utilize the roadway by law. They are given the same rights and must also obey all applicable traffic operations as automobile drivers. Scottsdale is committed to providing a safe place for bicyclist to operate on major streets by providing bike lanes. Bike lanes are a four to six foot wide part of the street located in the far right hand part of the street, designated with stripping and lane markings. Bike lanes are for the use of bicycles only. All of the standard cross-sections from Minor Collector classification up to a Major Arterial include bike lanes as a standard part of the street design. Smaller streets like local collectors and residential streets have low traffic volumes and low speeds and do not require bike lanes, bicyclist simply share the road.

Many streets of various classifications were built in the past without bicycle lanes due to changes in design standards or right-of-way restrictions. As such the current street system does not have a good connected network of bike lanes. These streets when improved will be reevaluated for the inclusion of bike lanes. The majority of new bike lanes however will be built along with major street widening or the construction of new streets.

Applicability of traffic laws to bicycle riders. ARS 28-812

"A person riding a bicycle on a roadway or on a shoulder adjoining a roadway is granted all of the rights and is subject to all of the duties applicable to the driver of a vehicle…"

Walking

Everyone is a pedestrian at some point or another, even if you are only walking from your car across the parking lot to a store. Accommodating pedestrians within the street network is important to promote increased activity and a safe environment for everyone. Sidewalks are the main facility used by pedestrians, all street classifications should include sidewalk facilities as outlined in the classification design guides. The only exception is for streets located in designated environmentally sensitive or rural parts of the city. In these areas sidewalks can be located on just one side of the street or not built if an unpaved multi-use trail is adjacent to the roadway, or some other accommodation for pedestrians is made (please refer to the DSPM for more detail).

Street crossings are the other major area which impact walking. Wide, fast streets with heavy traffic volumes can become barriers to pedestrians, if they become difficult to cross. Pedestrian signals, crosswalk designations and pedestrian refuges are a few of the design elements important to include in street designs.

Unpaved Multi-Use Trail Design Needs

Scottsdale has a very unique contingent of equestrian enthusiast, who enjoy a vast network of off-road unpaved multi-use trails throughout the city. In many cases these trails are adjacent to roadways. Ideally trails are located in more natural areas away from the roads but often trail connections were cut off by development over the years. The challenge is to accommodate the unpaved multi-use trail in the best possible way if and when no other route exists other than adjacent to the roadway. Buffering trail users, in particular equestrians, is the key to making a successful street design with trails.

Internet Tip

Get more info on the trail system at:
www.scottsdaleaz.gov/trails

The city has three strategies to accommodate unpaved trails adjacent to streets, which are detailed below. Strategies 1 and 2 apply mainly to areas designated Environmentally Sensitive Lands (see Figure 3-X), whereas strategy 3 pertains to more built-out, southern sections of Scottsdale.

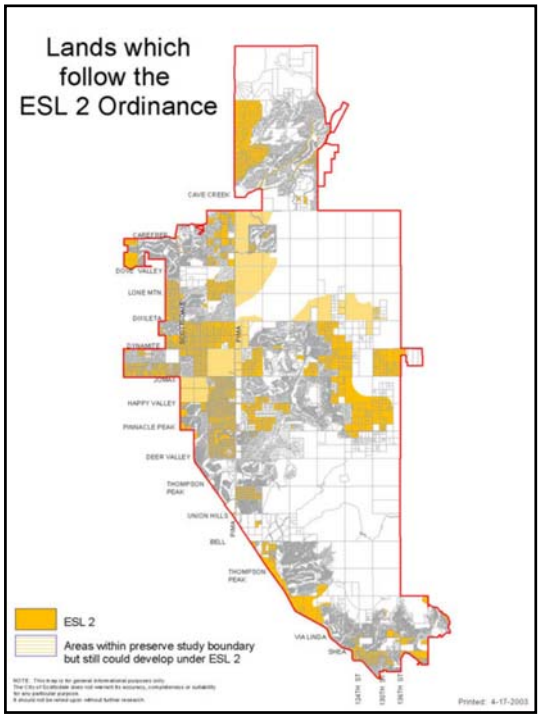


Figure 3-X: ESL Map

1. Roadways designated as "Scenic Corridors", will accommodate unpaved multi-use trails within the scenic easement outside of the street right-of-way, as identified in the *Trails Master Plan*. Other major streets without scenic easements should seek trail easements outside the right-of-way as identified in the *Trails Master Plan*. When scenic or trail easements do not exist or are unrealistic for trail placement, accommodation for the trail should be made in the street right-of-way. If feasible additional right-of-way should be acquired to maximize the buffer between the trail and street. This applies typically to Major/Minor Arterials and Major Collectors in ESL or rural parts of the city.

2. Alternative street alignment may be considered for smaller street classifications including Minor Collectors, Local Collectors and Residential, in ESL or rural parts of the city. The street center line may be offset to one side or the other of the right-of-way to maximize the space between the street and trail (see Figure 3-Y). This alternative street design applies to those streets with trails adjacent as identified in the *Trails Master Plan*.

3. In built-out situations where a scenic easement or separate trail easement is not possible the trail can be accommodated within the street right-of-way. Design consideration should be made to maximize the distance between the trail and street and to provide vertical buffers like trees whenever possible.

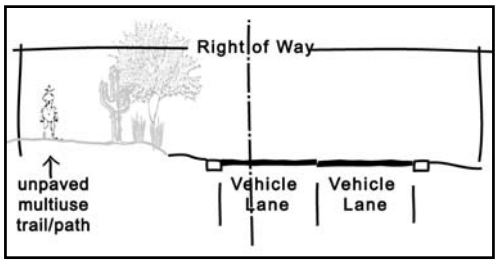


Figure 3-Y: Offset street example

In addition to accommodating trails adjacent to the street, providing safe street crossings is vital. Separated crossings such as underpasses are preferred but may not always be feasible. Where an underpass is not available the trail should cross at a signalized intersection. Intersections with high equestrian use should utilize pedestrian signal push buttons designed for riders to use without dismounting (see *Trails Master Plan* for details).

4.0 Implementation

Although the Streets Master Plan is primarily a reference document used as a tool in the decision making process, there are some specific implementation needs. How to adopt and maybe more importantly how and when to update the plan is outlined first. Second steps that need to be completed immediately upon adoption of the plan are detailed, including revising the Design Standards and Policy Manual. In some cases this plan is to general to answer many questions for specific locations such as intersections or corridors, a list of recommend sites for further study has been developed. General information about funding is included last providing a stepping stone to the Capital Improvement Program, which further implements the Streets Master Plan.

4.1 Adoption and Update Procedures

The Streets Master Plan contains policies and guidance which impact many aspects of future street development throughout the City of Scottsdale. The approval and adoption of this plan is an important element of how it is implemented.

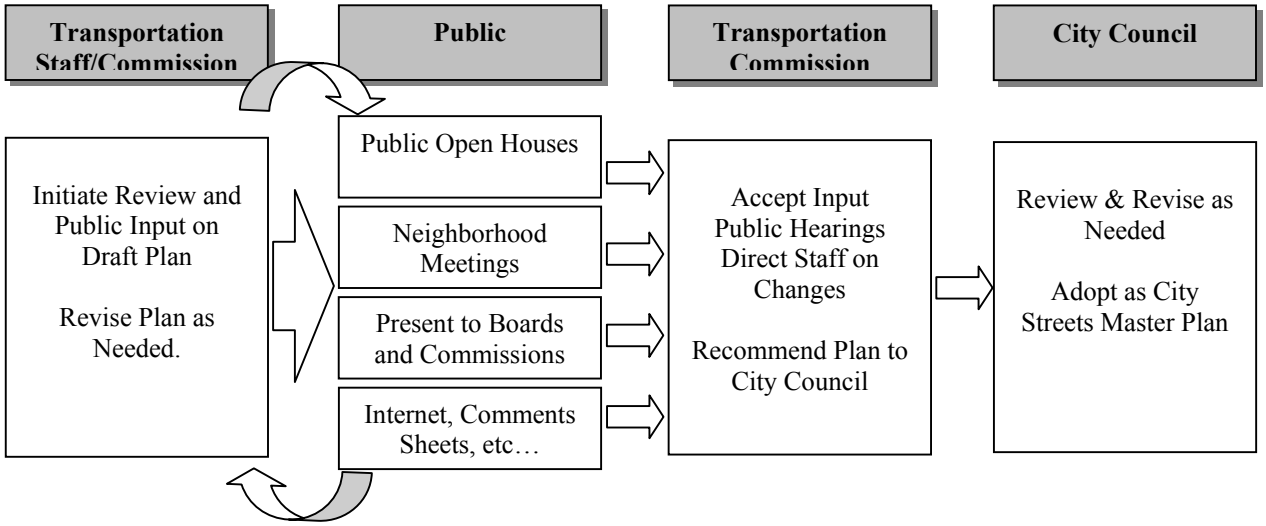
The adoption process requires action from the Transportation Commission and the City Council. The Transportation Commission by-laws state that the Commission will,

> "Review periodically the street element of the general plan and street master plan concept report and make appropriate comments and recommendations".

It is anticipated that after sufficient public review and input has been gathered, the Streets Master Plan will go to the Transportation Commission for their recommendation to the

City Council. Upon a recommendation by the Transportation Commission the plan will be forwarded to the City Council for adoption (see Fig. 4-A).

Figure 4-A: Input and Adoption Process



Major Updates and Revisions

The Streets Master Plan will be updated as an entire document every five (5) years. The major updates and revisions conducted at the five year intervals will follow the same adoption and approval process as when initially adopted and outlined above. If revisions or updates occur in the interim such revisions must be reviewed and approved by the Transportation Commission. Significant revisions and updates are those items deemed by the Transportation Commission to significantly alter the intent or spirit of the plan.

Minor Updates and Revisions

Minor updates or revisions to the plan will be subject to staff review and will be sent to the Transportation Commission as informational updates. These would include small text corrections, or changes to graphics, that do not change the intent of the plan. All staff changes will be reviewed on a yearly basis by the Transportation Commission.

4.2 Immediate Implementation Needs

The following items are to be completed upon adoption of the Streets Master Plan by the City Council:

- Revise and update the Design Standards and Policies Manual (Section 3.1 Geometrics).
- Revise and update the Design Guidelines and Polices for Environmentally Sensitive Lands (Section 700 Road Design)
- Distribute the new Street Classification Map to all city departments, either hard copy or electronically.
- Working with the Geographic Information Systems Division, update the street centerline file with the correct street classifications, for use by the Land Information System (LIS).

4.3 Project Identification

Developing actual projects from a general long range street plan can be challenging. Knowing the type and location of street projects is the first step. The more difficult second step is deciding when and how to pay for them. Streets projects are developed in response to a number of key indicators including; increased volumes, safety problems (such as an increase in accidents) and new or changing land uses.

Street Project Generators

- **Citizen request**
- **Safety needs**
- **Council request / priorities**
- **Capacity problems, current & future**

Corridor Studies

Further study may be required on certain street corridors to better identify the issues and needs. It is recommended that detailed corridor studies be conducted to identify and resolve issues as well as to identify future street projects.

Intersection Studies

In addition to corridor studies the City of Scottsdale Transportation Department has an ongoing Roadway Capacity Improvement (RCI) program. This program is focused on improving intersections throughout the city to improve safety and roadway capacity. Intersections are evaluated on the need for improving safety, adding capacity, improving traffic flow, improving transit operations and accommodating pedestrians better.

Transportation Commission Project Selection Process

The Transportation Commission is a body of citizens appointed by the City Council charged with advising the council on matters relating to transportation. Another duty of the commission is recommending projects for capital improvements, the commission created the following criteria to help them prioritize transportation projects:

Internet Tip

Learn more about the Transportation Commission
www.scottsdaleaz.gov/boards/Trans

Mobility *Impacts on intersection or roadway level of service, system continuity (bottlenecks), and connections between alternative transportation modes, and provision of non-single occupancy vehicle access and transportation options for youth and the economically disadvantaged.*

Public safety: *Reductions/increases in potential physical threats such as accidents, injuries, deaths, sickness due to poor air/water quality, flooding damages or reductions/increases in legal liability.*

Policies *Direction from City Council (General Plan elements, council actions, intergovernmental agreements, adopted master plans, etc.) support of the "Let's Get Moving Plan," citizen requests/complaints, task force reports, and potential impacts to neighborhoods and businesses.*

Relationship *Timing of linked projects (freeway/arterial, road/storm drain, road/bike lane, intersection improvement/signal installation, etc.), potential benefits or impacts to other facilities, connections to existing systems, effects on inter-jurisdictional relationships.*

Economy *Capital costs, benefits provided, future operating and maintenance costs, availability of matching funds (public or private), revenue generation potential, increases/decreases in tax base, availability of rights of way.*

Value added benefits: *Quality of life issues such as open space creation, aesthetic enhancements, reduced background noise, effects on commuters, and scenic vista protection.*

Mobility and safety are balanced against protecting neighborhoods and community character. The Transportation Commission uses the above criteria to bring forward the best set of street projects that achieve both; improvements in traffic circulation and improvements in quality of life in neighborhoods.

4.4 Cost and Funding

The Transportation program is one of the eight major programs that comprise the city's Capital Improvement Plan. According to the officially adopted Capital Improvement Plan, transportation projects account for about 23% of the entire CIP. Figure 4-B is an image from the 2002/03-2006/07 Capital Improvement Plan and shows the percent of funds by major program.

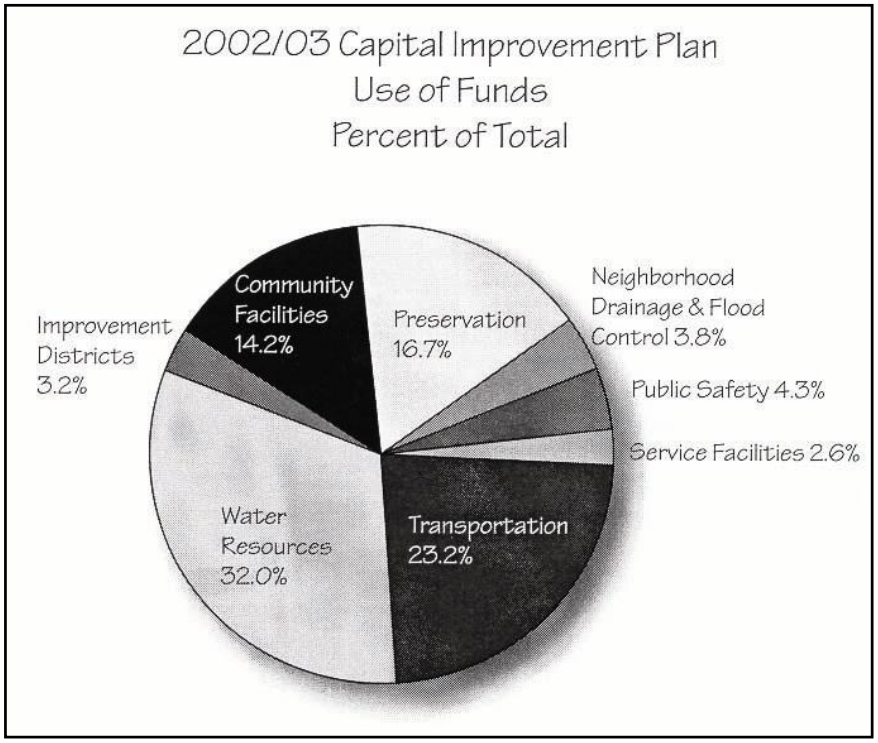


Figure 4-B: CIP Distribution

The city budgets an average of 40 million dollars a year for street improvement projects. On average the city has historically built about 10 million dollars worth of street projects per year. Major street projects range in cost from $27,000 for streetscape improvements to as much as $9,000,000 for construction of major new roadways. Figure 4-C shows the amount of funds budgeted for each of the major programs including Transportation over the next five years.

Internet Tip

View Detailed CIP Information at:
http://www.scottsdaleaz.gov/finance/cip.asp

Figure 4-C*: CIP Funding

*As taken from 2002-2007 Capital Improvement Plan

Capita Improvement Plan - Use of Funds
In Thousands of Dollars

Major Programs	Adopted 2002/03	Forecast 2003/04	Forecast 2004/05	Forecast 2005/06	Forecast 2006/07
Community Facilities	$73,195.8	$50,844.2	$37,786.6	$30,099.3	$9,749.2
Preservation	85,720.6	300.0	1,376.1	-	2,068.1
Neighborhood Drainage & Flood Control	19,719.2	16,104.4	14,623.1	19,322.6	5,219.7
Improvement Districts	16,177.2	-	-	-	-
Public Safety	22,337.5	33,359.1	13,583.5	2,215.9	-
Service Facilities	13,107.9	7,485.4	62,499.7	3,839.2	5,103.3
Transportation	119,166.8	47,746.3	48,515.5	60,394.1	31,344.6
Water Resources	164,478.4	73,723.3	48,515.5	28,717.1	66,418.6
Subtotal	$513,903.4	$229,562.7	$190,292.7	$144,588.2	$119,903.5
Prior Year Rebudget*	-	$315,013.7	$300,000.0	$250,000.0	$175,000.0
Transfers Out to Debt Service	$4,958.3	$4,969.9	$4,953.3	$4,953.6	$4,903.8
Total Use of Funds	$518,861.7	$549,546.3	$495,246.0	$399,541.8	$299,807.3

* Prior Year Rebudgets for 2002/03 are included in programs

Funding

The primary funding source for the transportation program is from the .2% Transportation Privilege Sales Tax approved by the voters in 1995. This fund generates about 16 million dollars per year today and is forecast to grow to just over 20 million per year by 2007.

Other major sources include the Highway Users Fund and grants from the Federal government. The city competes for

Federal funds with the rest of the communities in Maricopa County. Some of the programs include:

- Surface Transportation Fund (major street projects)
- Congestion Mitigation and Air Quality (intersection or bicycle and pedestrian projects)
- Enhancements Funds (bicycle projects)

Appendix

CITY OF SCOTTSDALE

STREETS MASTER PLAN

October, 2003

Appendix A: Existing Conditions

Appendix A contains the background information used to better understand the existing condition of the transportation system in Scottsdale. This is important in helping construct future plans and to ensure consistency with other existing planning efforts. A review of existing plans and programs is includes as well as some general information on the existing operation of the system. In addition future land use plans and the implications to the transportation system are reviewed. The purpose of Appendix A is provide a baseline from which the new Streets Master Plan could start.

Existing Plans and Programs

A wide array of plans, programs and policies influence decisions impacting the street system in Scottsdale. A variety of plans including the *General Plan*, *Character* area plans, the *Bicycle* and *Transit* plans all include elements addressing transportation in Scottsdale. Other programs and policies such as the Capital Improvement Program, scenic corridor policies and access control policies are all important when considering the state of the existing street network.

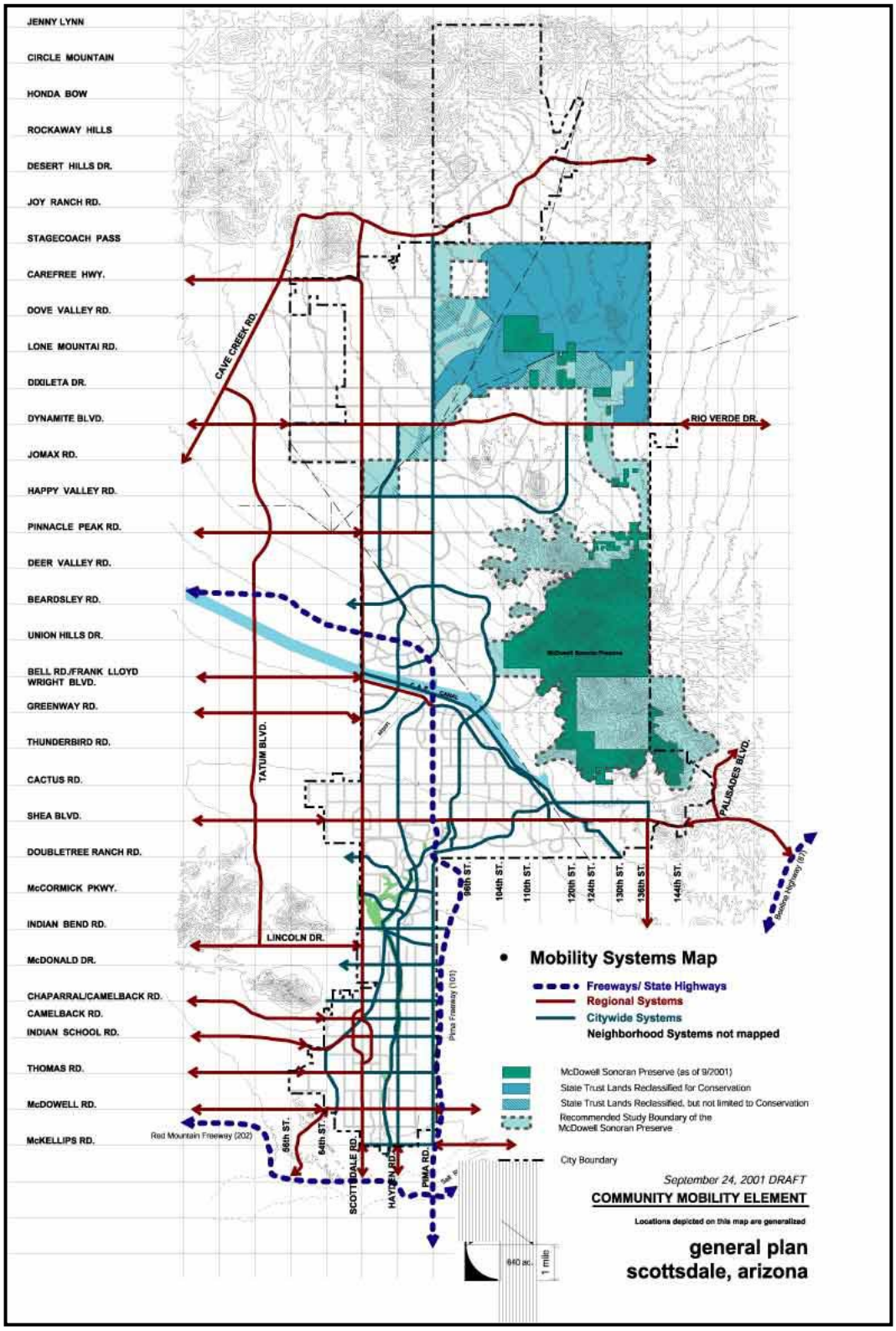
City of Scottsdale General Plan

The City of Scottsdale General Plan is the guiding document for making decisions on issues ranging from land use to economic investment. In March 2002 the voters of Scottsdale approved the first major update to the General Plan in a number of years. Of

the twelve elements there are six different elements, which influence transportation. These elements include:

- Community Mobility
- Land Use
- Economic Vitality
- Neighborhoods
- Growth Area
- Public Services and Facilities

Figure A*
General Plan Mobility Map



*From 2002 General Plan

The Community Mobility Element provides the framework for the creation of this Streets Plan. The main principles detailed in this element include:

Scottsdale is an auto-oriented community, and the primary reliance on the auto is creating negative impacts on the quality of life in the city.

Scottsdale cannot rely on "building our way out" of transportation problems - in other words more roads or traffic lanes will not solve our transportation problems.

Transportation solutions should not alter the physical character of the city.

Scottsdale needs to complete the roadway network (with bikeways included) AND encourage other modes of transportation.

The updated General Plan identifies three categories of streets; regional, citywide and neighborhood. Regional streets are the major roadways connecting to the larger metropolitan area where mobility take precedence over access. Citywide streets are the major streets serving the City of Scottsdale providing access to the majority of land uses. Neighborhood or local streets are simply those streets which provide direct access to residential areas and serve specific neighborhoods. These three street categories serve as the basis for the Streets Master Plan and the principles by which it has been developed, understanding that it is important to provide regional mobility while protecting neighborhoods.

Character Area Plans

The City of Scottsdale is broken down into twenty four unique Character Areas. Each geographic area represents a portion of the city that has a shared character, in terms of built environment and sense of community. An ambitious effort to create plans for each Character Area is ongoing, with three areas already completed. These Character Area Plans are important as they provide guidance when creating infrastructure.

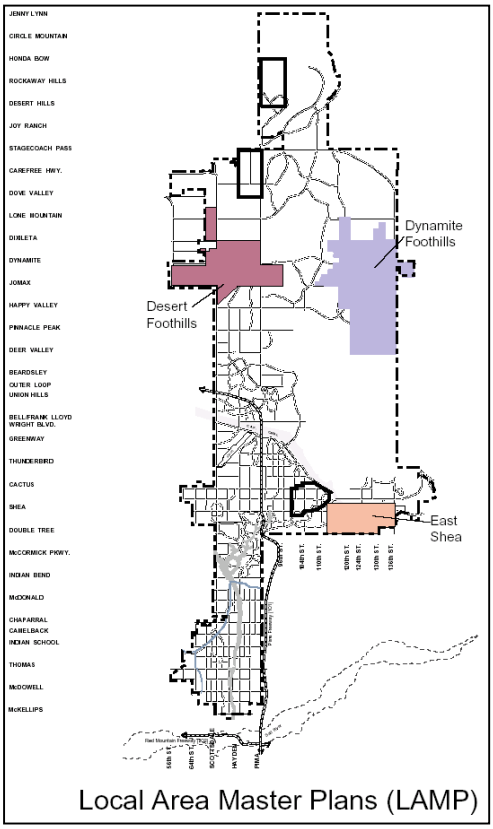
Local Area Master Plans

The Local Area Master Plan (LAMP) effort is a focused effort to master plan parts of the city that have otherwise developed in a piecemeal fashion. There are three main LAMP areas (see fig. B). These areas mainly consist of large parcel single family development, that have been developed on an individual basis rather than in a platted subdivision. This development pattern is resulting in an ever evolving transportation network. The city must plan, construct and maintain a significant amount of infrastructure to provide services such as water, sewer, sanitation, flood control, trails, fire protection, emergency services, and a safe and efficient transportation system. The LAMPs project will help coordinate the efforts of various departments in providing these necessary services. The following are transportation system specific goals, objectives and policies from LAMPs:

Goals

A. Provide a safe and efficient transportation system.
B. Maintain and improve traffic flow on the major street network.
C. Protecting neighborhoods from unwanted through traffic.
D. Maintain existing / utilized street layout whenever possible.
E. Minimize the cost of the improvements

Figure B
LAMPs Area Map



Objectives and Policies

a) Provide at a minimum, one city maintained access to each lot that meets city emergency access standards. (Goal A, C, D)

b) Reduce the number of access points along the arterial street system to improve safety and increase capacity. (Goal A, B)

c) Prevent direct residential access to arterial streets to improve resident safety and the transportation system efficiency. (Goal A, B, C)

d) Deter direct residential access to collector streets to reduce the negative effects of through travel to the residents. (Goal A, B, C)

e) Provide short residential streets that do not provide convenient cut through routes for through traffic. (Goal A, C)

f) Use the existing roads and Government Land Office right of way locations, as well as minimize new roads wherever feasible. (Goal D, E)

g) Coordinate streets with existing and planned infrastructure such as water lines, sewer lines, utility lines and trails. (Goal D, E)

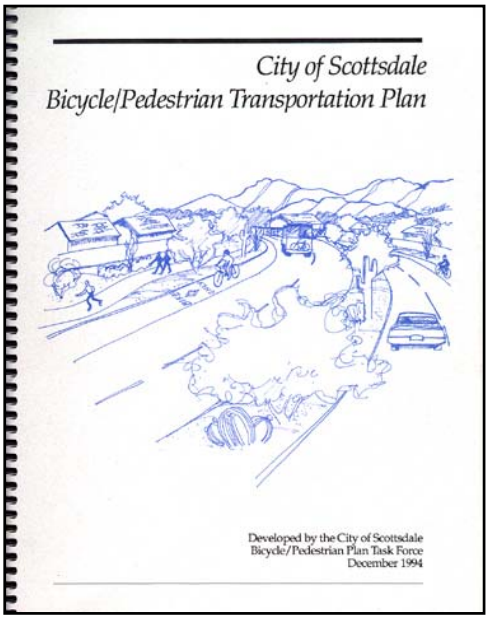
h) Avoid street crossings of large washes. (Goal A, D, E)

i) Provide the minimum amount of disturbance to the natural desert and the neighborhood. (Goal B, C, D)

Bicycle/Pedestrian Plan

The City of Scottsdale Bicycle Plan was completed in 1995 and provided a detailed picture of bicycle facilities in Scottsdale. The Bicycle Plan identifies two basic types of facilities; off-street and on-street. The on-street facilities consist mainly of a system of streets with bicycle lanes. The on-street network also includes a number of streets with a bike route designation. Typically these streets do not have any physical treatment to accommodate bicycles and are on minor neighborhood streets. Accommodating bicycles within the street network is vital to promote the use of alternative modes of transportation and to help manage auto demand on the street network.

Figure C
1994 Bicycle/Pedestrian Plan



The main impact of the bicycle plan on the Streets Master Plan is identifying bike lanes for the on-street system. Bike lanes are an inherent element of the major street cross-sections and should be included in all street projects unless there is a specific reason not to.

The Bicycle/Pedestrian plan also details the off-street multi-use path system. This multi-use path system is widely recognized as one of the most comprehensive networks in Arizona. The path system provides many miles of recreation as well as transportation choice for non-motorized travelers.

Transit Plan

The City of Scottsdale operates a comprehensive transit system, which utilizes the street system exclusively to operate. Buses operate on major streets, bus stops are located at many major intersections, transit would not be able to operate without the street system. Transit interfaces with the street system in two major ways. First transit is a user/mode of the street system, second transit is a means to manage demand on the street network. Transit removes a percentage of automobile drivers and concentrates them on fewer vehicles, increasing the overall capacity of the transportation system. The following is an excerpt from the Transit Plan on how transit influences street design.

Street Fact

The City has 15 bus routes offering 91,586 annual hours of transit service with 25 City-owned transit buses, 6 para-transit programs, 40 bus shelters and 80 bus stops with benches and 1 transit center.

Street Design

"Bus bays should be located on arterials and on the far side of signalized intersections. Streets should be designed to accommodate easy, continuous pedestrian paths. Sidewalks should be provided on all streets; local streets should have sidewalks adjacent to the curb and all other streets should have sidewalks separated from the curb by a two-foot median. Pedestrian crossings of streets should be accommodated at intervals of not more than 500 linear feet. Pedestrian refuges should be included in any street with a width of more than 50 feet.

In intersections, where the curb-to-curb distance is greater than 75 feet and where an intersecting bus route exists, bus Pedestrian Refuge stops should be located on both sides of the intersection. Passenger waiting areas will be developed only for those stops located downstream in these situations.

Priority measures should be implemented to give preferential treatment to buses operating on Scottsdale Road, Hayden Road and Shea Boulevard. The specific nature should be determined through further study.

Transit stops should generally be located on the far side of signalized intersections or intersections with collector and larger streets. Additional transit stops should also be considered at locations near or adjacent to major retail, office or multi-family (i.e. 250,000 square feet or 500 units or more) facilities. In some cases, the far side location may be moved further away from a intersection if there is no crossing transit route and there is a better access point serving adjacent uses within 500 feet of the intersection. Large, full-service transit stop facilities should be located where two city-wide and/or regional transit routes intersect or at transit stops located at park-and-ride facilities."

Capital Improvement Program

The Capital Improvement Program (CIP) is the yearly effort of allocating and prioritizing projects. The program extends 5 years into the future and identifies those projects to be built in that timeframe. The CIP takes the rough plans from sources like this streets master plan and turns them into actual projects. Currently the program has 20 street projects representing 125 lane miles of improvements. Also included in the 5-year plan are increased turn lane capacity at 33 major intersections and the connection of over 60 intersections into an intelligent traffic signal system. The focus for street projects for the next 10 years is south of Pinnacle Peak Road.

Access Control Policies

Access control policies are designed to control the flow of traffic between streets and surrounding land uses. Benefits of access control policies include the following:

- Postponing or preventing costly street improvements
- Improving safety conditions
- Reducing congestion and delay
- Providing safer access to and from streets
- Promoting desirable land use patterns
- Making pedestrian and bicycle travel safer

The City of Scottsdale has a number of existing access control policies. These include access policies for the following streets:

- Shea Boulevard
- Via Linda Boulevard
- Scottsdale Road
- Pima Road
- Dynamite Boulevard
- Frank Lloyd Wright Boulevard

In addition to the specific access control polices for the streets listed above (see appendix B for full text of each policy) there are several other polices which control access, including:

- Expressway (access control) Policy
- Parkway (access control) Policy
- Arterial Median Break Policy
- Scenic Corridor Policy

These polices are all aimed at control the level of access to and from major streets, to improve overall traffic safety and capacity.

Existing Operating Conditions

This section will review the existing conditions of the current transportation system, in terms of function and circulation patterns. In addition a review of the existing land use patterns will help reveal the current state of travel in the City of Scottsdale. Scottsdale is primarily a north south oriented City, served by three main traffic arterials. The recent completion of the Loop 101 freeway, which runs parallel to the City and then bisects the City, has fundamentally changed the circulation patterns and will continue to do so in the future.

Existing Street Network

The City of Scottsdale operates and maintains over 1100 miles of streets. There are 430 miles of private streets as well in

Street Fact

The City has 260 signalized intersections, all connected to the Traffic Management Center, 1,723 poles and cabinets, and 5 video traffic controller sites.

Table 1: Street Lane Miles

Lanes	Center Lane Miles	Lane Miles
1	12	12
2	1370	2740
3	19	57
4	79	316
5	21	105
6	23	138
Not Defined	38	-
Total	**1562**	**3368**

Scottsdale, which are owned and maintained by private entities. There are 260 signalized intersections o erated by the city. Table 2-A details the total miles of streets in Scottsdale by center lane as wells as lane miles, the vast majority of streets in Scottsdale are two lane streets. This is also reflected in Table 2-B which shows the total miles of each street classification. Residential and private (private streets are primarily residential in nature) streets make up the majority, these are almost always two-lane streets.

Table 2

Existing Street Classification	
Classification	**Miles**
Expressway	8
Parkway	0
Major Arterial	99
Minor Arterial	86
Major Collector	62
Minor Collector	108
Couplet	3
Residential	748
Private	430
Freeway	6
Not defined	12
Total	**1562**

Existing Traffic Patterns

Traffic circulation in Scottsdale is dominated by north/south travel patterns. Scottsdale Road, Hayden Road and Pima Road are the three main north/south thoroughfares running nearly 40 miles from one end of Scottsdale to the other. The recently completed Loop 101 freeway has impacted travel patterns significantly. The Loop 101 carries large numbers of north and south bound traffic but also east/west traffic as the freeway cuts through the city. Additionally the east/west streets connecting to

the Loop 101 has impacted traffic patterns as well, with travelers wanting to access the freeway. The east/west streets provide the most interface with adjacent communities like Paradise Valley, Phoenix and the Salt River Pima-Maricopa Indian Community.

Existing Traffic Volumes

The Traffic Engineering Division maintains information on traffic volumes for major roadway segments and intersections. The information they collect is publish every two years in the *Traffic Volume and Accident Rate Data* document. The latest year available during the creation of the Streets Master Plan was 2000.

Street Fact

The City has 92,650 street signs and 5,735 street lights.

The *2000 Traffic Volume and Accident Rate Data* noted the following about traffic volumes in Scottsdale. "Vehicle miles traveled within the City of Scottsdale increased by 92 percent from 1986 to 1998. In the last two years, the number of vehicle miles traveled decreased by 10% due to more vehicles traveling on the new Pima Freeway. The vehicle miles traveled for the year 2000 does not include vehicles traveling on the freeway." Table 2-C reflects the trend of number of vehicle miles driven in Scottsdale over the last fourteen years.

Table 3

Daily Million Vehicle Miles for Even Years								
Year	1986	1988	1990	1992	1994	1996	1998	2000
Vehicle Miles*	2.23	2.62	2.85	2.98	3.34	3.83	4.29	3.86

*In millions

From *2000 Traffic Volume and Accident Rate Data*

The completion of the Pima Freeway is expected to further impact traffic volumes and patterns in Scottsdale. With the

freeway complete no longer will various parts of the city experience "end of freeway" conditions with unusual amounts of traffic at the end of the freeway. It is expected that traffic patterns should become more stable, although a few major roads along the freeway corridor and in north Scottsdale have yet to be built.

Existing Accident Data

The Traffic Engineering Division report *2000 Traffic Volume and Accident Rate Data* also includes summaries of accident trends for the City of Scottsdale. As noted above this document is updated every two years and the latest available during this process was year 2000.

According to this report the average segment accident rate decreased by 1.2 percent in 2000. However the average intersection accident rate increased by 1.9 percent in 2000. Table 2-D shows the number of collisions as compared to the city's population since 1990.

Table 4

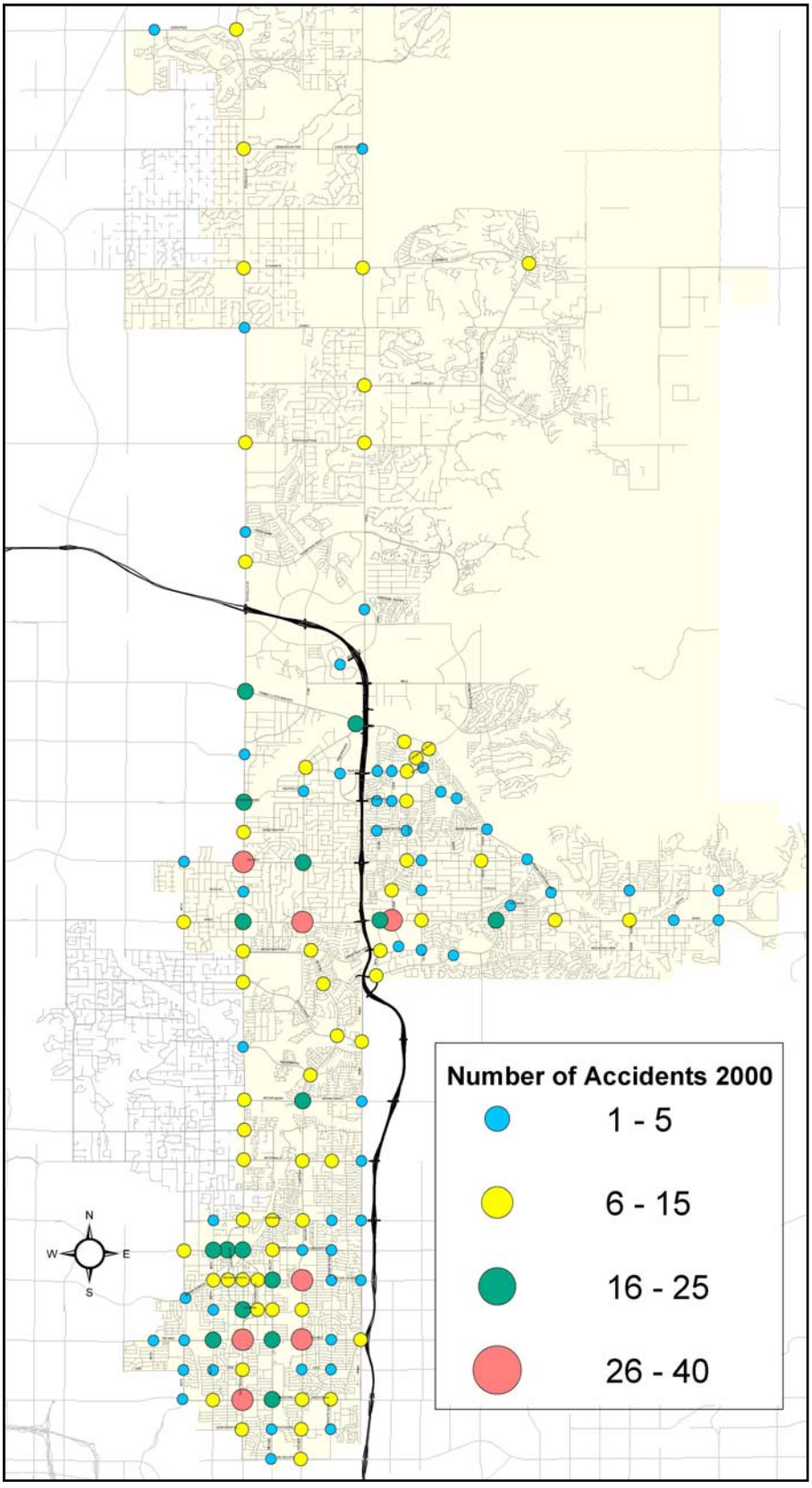
Number of Collisions and Population for Even Years						
Year	1990	1992	1994	1996	1998	2000
No. of Collisions	2875	3157	4062	4680	4566	4514
Population	131,399	140,310	158,030	176,880	199,224	215,080

From *2000 Traffic Volume and Accident Rate Data*

Figure 2-D shows the dispersion of accidents as recorded for the year 2000. As can be expected the streets with the highest traffic volumes also have intersections with the highest number of accidents including:

- Cactus Road and Scottsdale Road (38 accidents)
- Shea Boulevard and 90th Street (37 accidents)
- Indian School Road and Hayden Road (34 accidents)
- Shea Boulevard and Hayden (30 accidents)
- McDowell Road and Scottsdale Road (29 accidents)
- Thomas Road and Scottsdale Road (28 accidents)
- Thomas Road and Hayden Road (27 accidents)

Figure D
Accidents Dispersion for 2000



Maricopa Association of Government Forecast

The Maricopa Association of Governments (MAG) is a regional planning organization that was formed by the agreement of the various towns and cities within Maricopa County. One of its major roles is to analyze the future demands of traffic and plan for major regional transportation networks. In order to accomplish this role, MAG has developed a comprehensive traffic model for the entire Valley. This model is the primary basis for communities such as Scottsdale to project future demands and test out options on how to manage these demands. The information that the model uses comes from each of the members communities and typically is updated every five years as the most recent Census data is made available.

Scottsdale has used the modeling done by MAG for over 24 years to understand how land uses, projected growth and external conditions will affect the need for, size and timing of transportation improvements. This modeling is one of the key information source used in the development of this master plan.

Future Land-use Trends

Scottsdale in the early 2000s is beginning to approach the full build of available vacant lands within the city. Over 75% of all the homes that will exist in the city over the foreseeable future have already been built. The primary distribution of land uses has already been established and for the most part future land use changes will be refinements and adjustments to this established pattern. The development on lands surrounding the city are not as set and there could be significant changes, particularly along the southeast perimeter of the city.

Major cores of development and intensity have been planned by adjacent jurisdictions to the south and west. The Rio Salado and Gateway East areas of north Tempe and east Phoenix are planned for a intense mix of employment, business and high density residential uses. The Desert Ridge and Paradise Ridge projects along the 101 Freeway in Phoenix just west of Scottsdale will likely also have a major concentration of employment, business, residential and hotel uses. Finally, the Salt River Pima Maricopa Indian Community has plans for major employment and business centers along the 101 Freeway just east of the city.

Within Scottsdale the primary areas where substantial development and redevelopment could alter existing patterns of traffic are the Downtown, the former Los Arcos site and adjacent properties, the McCormick Ranch Center, the Airpark area and the corridor along the 101 Freeway north of the CAP aqueduct. Although Scottsdale has more jobs than it has employed residents, recent surveys have shown that a majority of its citizens that work go to work outside of the city and most of who work in the city come from outside the city.

Summary

The Streets Master Plan will be the main document used to reference future street classifications and street cross-sections. There are however a number of other documents and programs that impact how future streets are planned and built, including the following:

- General Plan
- Character Area Plans
- Local Area Master Plans
- Bicycle/Pedestrian Plan
- Transit Plan
- Capital Improvement Program
- Access Control Policies
- Design Standards and Policies Manual

All of these documents or programs influence the future street network in one form or another.

The city operates thousands of miles of streets and hundreds of intersections with a multitude of equipment and facilities. The main goals in operating the street network is to improve safety (reduce accidents) and increase capacity. The amount of traffic will increase as the city's population continues to grow. Accommodating this traffic in the safest most efficient manner is the purpose of the Streets Master Plan.

Appendix B – Access Control Policies

This appendix contains the existing access control polices for the City of Scottsdale. General policies such as the Arterial Median Break Policy apply to all streets classified as arterials. The following streets have specific access control policies:

- Dynamite Boulevard
- Frank Lloyd Wright Boulevard
- Pima Road
- Scottsdale Road
- Via Linda
- Shea Boulevard

ARTERIAL MEDIAN BREAK POLICY

GENERAL

Freeways are unsignalized and accessed only at interchanges, which do not interrupt traffic flow on the main line. They are designed for maximize mobility, while limiting accessibility. Collector roads are designed to provide access from neighborhoods to the major street network, have many access points and provide for some mobility. Arterials fall between a freeway and collector roads by having limited signals, with primary access from city streets, rather than driveways. The primary function of an arterial road is to favor mobility over access, limiting the number of disruptions to through traffic to critical locations. Arterials have a typical design capacity of 30,000 to 50,000 vehicles per day. The secondary function of an arterial is to protect neighborhoods from cut through travel. By providing little delay and low congestion arterials prevent drivers from looking for alternative routes through neighborhoods.

ARTERIAL POLICY

The following Arterial Policy applies to any major or minor arterial identified by the city's Streets Master Plan. Deviation from the Arterial Policy requires approval of the Scottsdale City Council.

1. Drive Separation from Streets

Driveways accessing an arterial shall be separated from a public street intersection by at least the following distances (Figure 1):

A. Right in, right out drive
   i. Upstream of (approaching) a public street - 330 feet
   ii. Downstream of (past) a public street - 330 feet
B. Right in only drive
   i. Upstream of (approaching) a public street - 330 feet
   ii. Downstream of (past) a public street - 330 feet

2. Median Openings

Arterial median openings shall be as follows:

A. A full median opening shall be separated from another full median opening by a minimum of one-quarter mile.

B. A partial median opening, of the type shown in Figures 2 - 5, shall be separated from any other median opening by a minimum distance of one eighth of a mile.

3. Number of Drives

A parcel of land shall have no more than two access locations to an arterial unless capacity on the arterial will be degraded to a lower level of service, without an additional direct access to the arterial. This shall be determined by a comprehensive traffic impact analysis with a design condition including developer attributable road and intersection improvements, as specified by the city.

4. Spacing Between Private Drives

Private drive access to an arterial shall be not less than 330 feet from the nearest adjoining private drive.

5. Exclusive Side Street Access

A parcel, adjoining an arterial, with alternative access via a side street or a cross access easement, shall not have direct driveway access to the arterial, unless:

A. Capacity on the arterial or side street will be degraded to a lower level of service, without direct access from the parcel to the arterial. This shall be determined by a comprehensive traffic impact analysis with a design condition, including developer attributable road and intersection improvements, as specified by the city; or,

B. Satisfactory evidence is provided to the city that the proposed allowable use of the parcel would be economically viable only with a separate entrance from the arterial, because an exclusive non-arterial access is shown to be overly circuitous for the use.

6. Side-Street Access Location

On city side streets that are connected to an arterial, driveways shall be at least 330 feet from the arterial.

7. Residential Access

A parcel for single-family residential use, adjoining an arterial, shall not have access to an arterial, unless there is no alternative access.

8. Deceleration

Any right turn drive from an arterial shall include a deceleration lane.

9. Traffic Signals

Traffic signals on an arterial should be separated by a minimum of one half mile, unless other signal spacing is approved by the city, based on a signal study. If a signal becomes warranted, at a location that has not been identified as a future signal location, a restrictive median approved by traffic engineering will be designed and installed to prevent signalization, improve the operation of the intersection and preserve mobility on the arterial.

10. Intersection Control

An arterial intersection, with an overall average daily entering volume of more than 30,000 vehicles, shall be configured as follows:

A. Four way intersection
   i. With median turn bays, left turns in only from the parkway (Figure 2), or;

   ii. Signalized based on a signal study and 9, above.

B. Three way "T" intersection
   i. With median turn bay, left turn in from (Figure 3), or left hand turn out to the arterial (Figure 4), or;
   ii. With median turn bays, left turn in from, and left turn out to the arterial (Figure 5), or;
   iii. Signalized based on a signal study and 9, above.

11. Access by Alternative Modes of Transportation

A. Non-motorized Access
A development, with frontage on an arterial, shall be accessible by pedestrians and bicycles.

B. Multiuse Path
A minimum six-foot wide sidewalk with maximum allowable buffer shall be included along each side of an arterial.

C. Bus Bay
There shall be a far side bus bay at all signalized arterial intersections.

i. New development, fronting a city designated bus bay location, shall provide the bus bay, including shelter, trash can and bike rack. With city approval, the bay may be incorporated into an elongated deceleration lane.

ii. New development with frontage on an arterial shall be responsible for regional bus stop signs.

iii.

D. Underpass/Overpass

i. An arterial shall have pedestrian/multi-purpose underpasses at intervals appropriate to projected use. Pedestrian/multi-purpose underpasses shall be incorporated with drainage structures where feasible.

ii. An arterial shall incorporate vehicle underpasses/overpasses where vehicle cross traffic demand indicates capacity on the arterial or side street will be degraded to a level of service (LOS) lower than LOS D. These shall be combined with pedestrian/multi-purpose underpasses where feasible.

DEFINITIONS/STANDARDS

The following apply to the Arterial Policy.

A. Parcel - one or more lots owned or controlled by a single entity

B. Spacing - all drive or roadway spacing distances are centerline to centerline

DYNAMITE BOULEVARD POLICY

Dynamite Boulevard is classified as an arterial in Scottsdale's Streets Master Plan
Deviation from the Dynamite Boulevard Policy requires approval of the Scottsdale City Council.

1. Arterial Policy[1]
The Arterial Policy applies to the entire length of Dynamite Boulevard within the city limits.

2. Driveway Minimization
These provisions are to minimize the number of driveways to Dynamite Boulevard, being applied at specific locations and as developmental conditions warrant:

A. Cross Parcel Easement
A parcel for other than residential use, adjoining Dynamite Boulevard, shall provide a cross parcel access easement to parcels adjoining to the east and west.

B. Shared Drives
A parcel, having frontage and access only to Dynamite Boulevard shall access Dynamite Boulevard only by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals
Traffic signals are currently located at Scottsdale Road and Pima Road. Additional signals, if and when warranted, shall be limited to 56th Street, 64th Street, Hayden Road, 97th Street, 103rd OR 108th Street, Alma School Parkway, 118th Street, 128th Street, and 136th Street.

4. Access by Alternative Modes of Transportation

A. Multiuse Trail
There shall be a multiuse trail along at least one side of Dynamite Boulevard, between Pima Freeway and Stagecoach Pass connected by underpasses as indicated by demand and connected to the powerline corridor and all other multi-use paths.

B. Underpass
There shall be multi-purpose grade separated crossings to allow for the safe free flow of pedestrian, bicycle, skate and other non-motorized travel in the vicinity of the powerline corridor paths and other locations as demand and safety dictate.

FRANK LLOYD WRIGHT BOULEVARD POLICY

Applies only to Frank Lloyd Wright Boulevard (FLWB) from Scottsdale Road east and south to Shea Boulevard. Deviation from the Frank Lloyd Wright Median Break Policy requires approval of the Scottsdale City Council.

BACKGROUND

Arterials fall between a freeway and collector roads by having limited signals, with primary access from city streets, rather than driveways. The primary function of an arterial road is to favor mobility over access, limiting the number of disruptions to through traffic to critical locations. Arterials have a typical design capacity of 30,000 to 50,000 vehicles per day. The secondary function of an arterial is to protect neighborhoods from cut through travel. By providing little delay and low congestion arterials prevent drivers from looking for alternative routes through neighborhoods. If the capacity of an arterial is compromised and/or restricted traffic congestion will increase. As delay increased on the major roads drivers will inevitably look to the lower classified residential roads for alternative routes. Therefore, in order to protect neighborhoods from cut through traffic the primary function of the arterial roads must also be protected.

1. Major Arterial

Frank Lloyd Wright Boulevard (FLWB) is classified as a major arterial in Scottsdale's General Plan and shall strictly adhere to the access restrictions of the Arterial Road Policy.

2. Driveway Minimization

These provisions are to minimize the number of driveways to FLWB, being applied as specific locations and developmental conditions warrant:

A. Cross Parcel Easement

A parcel for other than residential use, adjoining FLWB, should provide a cross parcel access easement to parcels adjoining to the east and west.

B. Shared Drives

A parcel, having frontage and access only to FLWB, should access FLWB by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals

Traffic signals are currently located at Scottsdale Road, the Promanade, 76th Street, Greenway-Hayden Loop, Hayden Road, Pima Freeway, 90th Street, 92nd Street, Thompson Peak Parkway, Raintree Drive, 100th Street, Cactus Road, Altadena Drive, Via Linda and Shea Boulevard. No additional signals shall be located along the roadway. If a signal becomes warranted, at a location that is not currently signalized a restrictive median will be designed and installed to prevent signalization, improve the operation of the intersection and preserve mobility on the arterial.

4. Access by Alternative Modes of Transportation

A. Multiuse Trail

There shall be a multiuse trail along the at least one side of FLWB from Scottsdale Road and Shea Boulevard connected by underpasses as indicated by demand and connected to the power line corridor multi-use path, the Camelback Walk path and to the Central Arizona Project Corridor for future path connections.

B. Park and Ride Lot

As development warrants, there should be park and ride lots along FLWB near Scottsdale Road and near Via Linda.

C. Underpass

There shall be multi-purpose grade separated crossings to allow for the safe free flow of pedestrian, bicycle, skate and other non-motorized travel in the vicinity of Scottsdale Road, Hayden Road, Thompson Peak Parkway, Cactus Road, Shea Boulevard and other locations as determined by need.

PIMA ROAD POLICY

Applies only to Pima Road from the Pima Freeway to Stagecoach Pass. Deviation from the Pima Road Policy requires approval of the Scottsdale City Council.

1. Arterial Policy
The Arterial Policy applies to Pima Road from the Pima Freeway north to Stagecoach Pass.

2. Driveway Minimization
These provisions are to minimize the number of driveways to Pima Road, being applied at specific locations and as developmental conditions warrant:

A. Cross Parcel Easement
A parcel for other than residential use, adjoining Pima Road, should provide a cross parcel access easement to parcels adjoining to the east and west.

B. Shared Drives
A parcel, having frontage and access only to a parkway, should access the parkway by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals
Traffic signals are currently located at Pima Freeway, Downing Olsen, Thompson Peak Parkway, Pinnacle Peak Road, Happy Valley Road, and Dynamite Boulevard. Additional signals, if and when warranted, shall be limited to Union Hills Drive, Hualapai Drive, Los Gatos, Yearling Road OR Desert Highlands Drive, Dixileta Drive, Lone Mountain Road, Westland Drive, and Stagecoach Pass. Within one month of the Signal at Union Hills being activated, the signal at Downing Olsen is to be removed and access should be restricted to ensure that safety and efficiency is maintained.

4. Access by Alternative Modes of Transportation
A. Multiuse Trail
There shall be a multiuse trail along at least one side of Pima Road, between Pima Freeway and Stagecoach Pass connected by underpasses as indicated by demand and connected to the both power-line corridor multi-use paths.

B. Park and Ride Lot
As development warrants, there should be a park and ride lot along Pima Road in the vicinity of the Pima Freeway.

C. Underpass
There shall be multi-purpose underpasses to allow for the safe free flow of pedestrian, bicycle, skate and other non-motorized travel in the vicinity of the power-line corridor paths, Westland Drive and other locations as demand and safety dictate.

SCOTTSDALE ROAD POLICY

Applies only to Scottsdale Road from Frank Lloyd Wright Boulevard north to Carefree Highway. Deviation from the Scottsdale Road Policy requires approval of the Scottsdale City Council.

1. Arterial Policy
The Arterial Policy applies to Scottsdale Road from Frank Lloyd Wright Boulevard north to Carefree Highway.

2. Driveway Minimization
These provisions are to minimize the number of driveways to Scottsdale Road, being applied as specific locations and developmental conditions warrant:

A. Cross Parcel Easement
A parcel for other than residential use, adjoining Scottsdale, should provide a cross parcel access easement to parcels adjoining to the east and west.

B. Shared Drives
A parcel, having frontage and access only to a parkway, should access the parkway by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals
Traffic signals are currently located at FLW, Dana Suites, Princess Drive, Mayo Boulevard, Thompson Peak Parkway, Greyhawk Drive, Pinnacle Peak Road, Jomax Road, Dynamite Boulevard, Lone Mountain Road, Dove Valley and Carefree Highway. Additional signals, if and when warranted, shall be limited to Pima Freeway, Deer Valley Road, Williams Drive, Happy Valley Road, Dixileta Drive, Ashler Hills, Westland Drive, and Center Drive.

4. Access by Alternative Modes of Transportation

A. Multiuse Trail
There shall be a multiuse trail along the both side of Scottsdale Road, between FLW and CFH connected by underpasses as indicated by demand and connected to the both power-line corridor multi-use paths.

B. Park and Ride Lot
As development warrants, there should be a park and ride lots along Scottsdale Road in the vicinity of Mayo Boulevard, Pinnacle Peak Road and Westland Drive.

C. Underpass
There shall be multi-purpose underpasses to allow for the safe free flow of pedestrian, bicycle, skate and other non-motorized travel in the vicinity of Mayo Boulevard, Hualapai Drive, Williams Drive, Happy Valley Road and Westland Drive and other locations as determined by need.

VIA LINDA POLICY

Applies only to Via Linda from 90th Street to 136th Street. Deviation from the Via Linda Policy requires approval of the Transportation Commission.

BACKGROUND

Arterials fall between a freeway and collector roads by having limited signals, with primary access from city streets, rather than driveways. The primary function of an arterial road is to favor mobility over access, limiting the number of disruptions to through traffic to critical locations. Arterials have a design capacity of 30,000 to 50,000 vehicles per day. The secondary function of an arterial is to protect neighborhoods from cut through travel. By providing little delay and low congestion arterials prevent drivers from looking for alternative routes through neighborhoods. If the capacity of an arterial is compromised and/or restricted traffic congestion will increase. As delay increased on the major roads drivers will inevitably look to the lower classified residential roads for alternative routes. Therefore, in order to protect neighborhoods from cut through traffic the primary function of the arterial roads must also be protected.

1. Major Arterial

Via Linda is classified as a major arterial in Scottsdale's General Plan and shall strictly adhere to the access restrictions of the Arterial Road Policy.

2. Driveway Minimization

These provisions are to minimize the number of driveways to Via Linda, being applied as specific locations and developmental conditions warrant:

A. Cross Parcel Easement

A parcel for other than residential use, adjoining Via Linda, should provide a cross parcel access easement to parcels adjoining to the east and west.

B. Shared Drives

A parcel, having frontage and access only to Via Linda, should access the parkway by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals

Traffic signals are currently located at 90th Street, 91st Street, 96th Street, Mountain View Road, 104th Street, Shea Boulevard, Frank Lloyd Wright Boulevard, and 124th Street. Additional signals, if and when warranted, shall be limited to 110th Street, 118th Street, 128th Street, 132nd Street, and 136th Street. If a signal becomes warranted, at a location that has not been identified as a future signal location, a restrictive median will be installed to prevent signalization, improve the operation of the intersection and preserve mobility on the arterial.

4. Access by Alternative Modes of Transportation

A. Multiuse Trail

There shall be a multiuse trail along the at least one side of Via Linda from 90th Street to 136th Street connected by underpasses as indicated by demand and connected to the power-line corridor multi-use path, the Camelback Walk path, the McDowell Mountain Preserve trailheads and to the Central Arizona Project Corridor for future path connections.

B. Underpass

There shall be multi-purpose grade separated crossings to allow for the safe free flow of pedestrian, bicycle, skate and other non-motorized travel in the vicinity of 102nd Street, Shea Boulevard, Frank Lloyd Wright, the CAP Corridor, 120th Street, 126th Street, 136th Street and other locations as determined by need.

SHEA BOULEVARD POLICY (PREVIOUS EXPRESSWAY POLICY)

City of Scottsdale Transportation Commission, Adopted January 5, 1995 (As of the adoption date of this policy, Shea Boulevard, from Pima Road east to the city limits, is the only expressway in the city's General Plan. The expressway classification was merged into the Arterial Classification in the Streets Master Plan, this expressway policy still applies as defined to Shea Blvd.)

GENERAL

A freeway is unsignalized and accessed only at interchanges. A major arterial is signalized, and often accessed by numerous direct driveways. An expressway falls between a freeway and a major arterial, having limited signals, with primary access from city streets, rather than driveways. An expressway has the capacity to carry 50,000 vehicles per day at level of Service C.

EXPRESSWAY POLICY

The following General Expressway Policy applies to any expressway in the city's Streets Master Plan. Deviation from the General Expressway Policy requires approval of the Transportation Commission.

1. Drive Separation from Streets

Driveways accessing an expressway shall be separated from a public street intersection by at least the following distances (Figure 1):

A. Right in, right out drive

i. Upstream of (approaching) a public street 660 feet

ii. Downstream of (past) a public street 330 feet

B. Right in only drive

i. Upstream of (approaching) a public street 330 feet

ii. Downstream of (past) a public street 330 feet

2. Median Openings

Expressway median openings shall be as follows:

A. A full median opening shall be separated from another full median opening by one mile.

B. A partial median opening, of the type shown in Figures 2 5, shall be separated from any other median opening by a minimum distance of one quarter of a mile.

3. Number of Drives

A parcel of land shall have no more than one access location to an expressway unless capacity on the expressway will be degraded to a lower level of service, without an additional direct access to the expressway. This shall be determined by a comprehensive traffic impact analysis with a design condition including developer attributable road and intersection improvements, as specified by the city.

4. Spacing Between Private Drives

Private drive access to an expressway shall be not less than 660 feet from the nearest adjoining private drive.

5. Exclusive Side Street Access

A parcel, adjoining an expressway, with access to another side street, shall have public access exclusively to the side street, unless:

A. Capacity on the expressway or side street will be degraded to a lower level of service, without direct access from the parcel to the expressway. This shall be determined by a comprehensive traffic impact analysis with a design condition, including developer attributable road and intersection improvements, as specified by the city; or,

B. Satisfactory evidence is provided to the city that the proposed allowable use of the parcel would be economically viable only with a separate entrance from the expressway, because an exclusive non expressway access is shown to be overly circuitous for the use.

6. Side Street Access Location
On city side streets that are connected to an expressway, driveways shall be at least 330 feet from the expressway.

7. Residential Access
A parcel for single family residential use, adjoining an expressway, shall not have access to an expressway, unless there is no alternative access.

8. Deceleration Lane
Any right turn drive from an expressway shall include a deceleration lane.

9. Traffic Signals
Traffic signals on an expressway should be separated by one mile, unless other signal spacing is approved by the city, based on a signal study.

10. Intersection Control
An expressway intersection, with an overall average daily entering volume of more than 30,000 vehicles, shall be configured as follows:

A. Four way intersection
i. With median turn bays, left turns in only from the expressway (Figure 2), or;
ii. Signalized pursuant to 9, above.
B. Three way "T" intersection
i. With median turn bay, left turn in from (Figure 3), or left hand turn out to the expressway (Figure 4), or;
ii. With median turn bays, left turn in from, and left turn out to the expressway (Figure 5), or;
iii. Signalized pursuant to 9, above.

11. Access by Alternative Modes of Transportation
A. Non-motorized Access
A development, with frontage on an expressway, shall be accessible by pedestrians and bicycles.
B. Multiuse Path
A ten foot wide multiuse path shall be included along each side of an expressway.
C. Bus Bay
There shall be a far side bus bay at all signalized expressway intersections.
i. New development, fronting a city designated bus bay location, shall provide the bus bay, including shelter, trash can and bike rack. With city approval, the bay may be incorporated into an elongated deceleration lane.
ii. New development with frontage on an expressway shall be responsible for regional bus stop signs.
D. Underpass
An expressway shall have pedestrian/ multi□ purpose underpasses at intervals appropriate to projected use. Underpasses shall be incorporated with drainage structures where feasible.
E. Park and Ride Lot
Park and Ride lots shall be located in convenient proximity to an expressway, with size and frequency appropriate to projected area demand.

DEFINITIONS/STANDARDS
The following apply to the Expressway Policy.
A. Parcel - one or more lots owned or controlled by a single entity
B. Spacing - all drive or roadway spacing distances are centerline to centerline

SHEA BOULEVARD POLICY

Applies only to Shea Boulevard from Pima Road east to the city limits. Deviation from the Shea Boulevard Policy requires approval of the Transportation Commission.

1. Expressway Policy[1]
The Expressway Policy applies to Shea Boulevard, from Pima Road east to the city limits.

2. Driveway Minimization
These provisions are to minimize the number of driveways to Shea Boulevard, being applied as specific locations and developmental conditions warrant:
A. Cross Parcel Easement
A parcel for other than residential use, adjoining Shea Boulevard, should provide a cross parcel access easement to parcels adjoining to the east and west.
B. Shared Drives
A parcel, having frontage and access only to an expressway, should access the expressway by means of a driveway located along a side property line. The drive should be used as a shared access drive with an adjoining parcel.

3. Traffic Signals
Traffic signals are currently located at 90th Street, 92nd Street, 96th Street, Via Linda (106th Street), 110th Street, Frank Lloyd Wright Boulevard (114th Street), and 124th Street. Additional signals, when warranted, shall be limited to 100th Street, 120th Street, 130th Street, 134th Street, 136th Street, and 142nd Street.

4. Median Openings
There shall be no new median openings between Pima Road and 124th Street. For the area between 124th Street east to the county line, there shall be no additional median openings beyond those contained in the construction plans approved in city project #S1707.

5. Left In Only Median Openings
The 89th Place, 93rd Street and 116th Street median openings shall be reconfigured to be right in, right out and left in from Shea Boulevard. Left turns out to Shea Boulevard shall be discontinued.

6. Access by Alternative Modes of Transportation
A. Multiuse Trail
There shall be a multiuse trail along the south side of Shea Boulevard, between Pima Road and the 114th Street underpass, and along the north side of Shea Boulevard from the 114th Street underpass to the 136th Street underpass.
B. Park and Ride Lot
As development warrants, there should be a park and ride lot in the vicinity of Shea Boulevard and 124th Street and another in the vicinity of 136th Street. These are in addition to the Mustang Transit Center and other transit accommodations in the City of Scottsdale Transit Plan.
C. Underpass
There shall be a multi-purpose underpass in the vicinity of 124th Street.

DEFINITIONS/STANDARDS

The following apply to the Shea Boulevard Policy.
A. Parcel one or more lots owned or controlled by a single entity
B.Spacing all drive or roadway spacing distances are centerline to centerline